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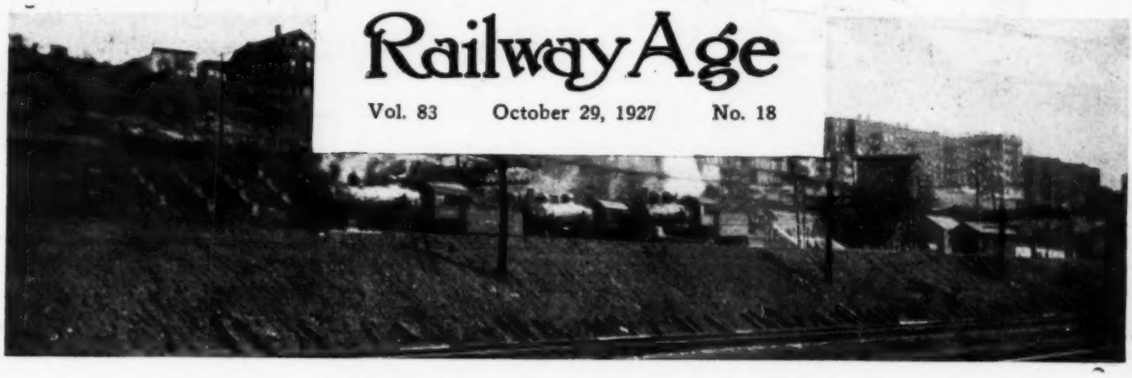

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Contents

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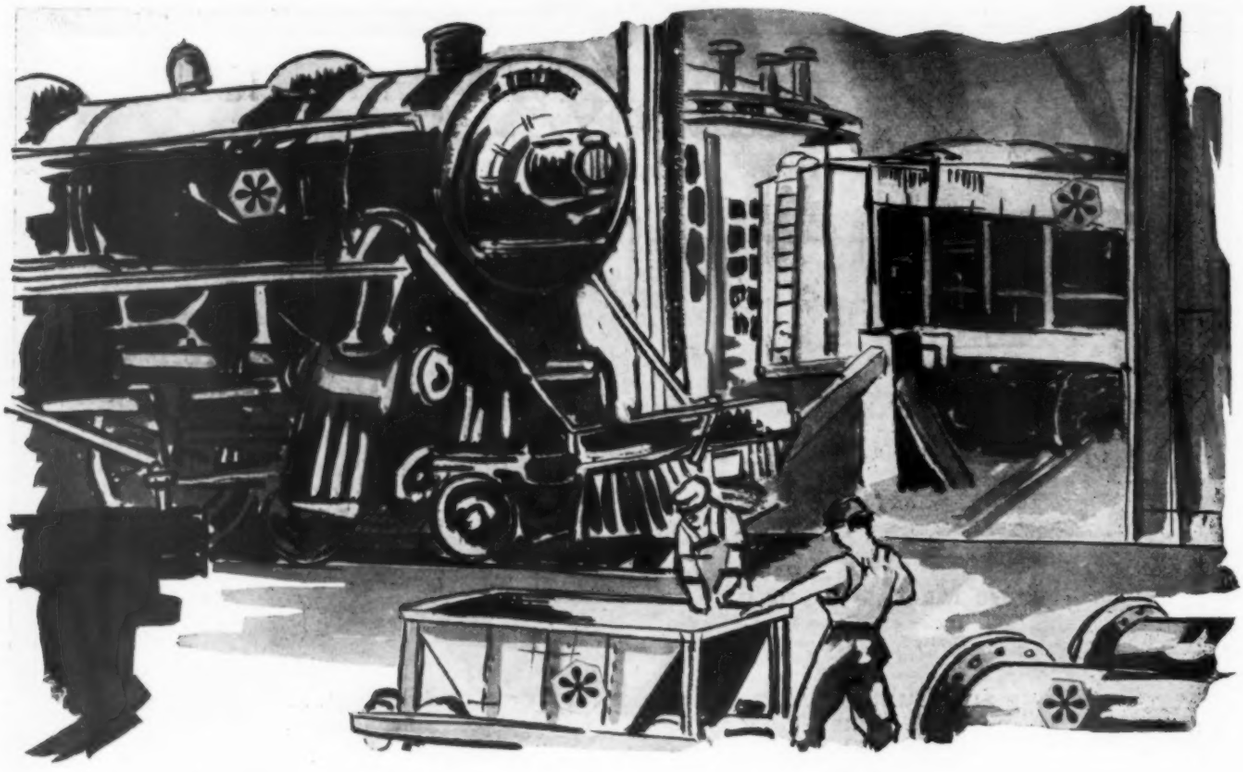

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Railway Age
Motor Transport Section
Devoted to the Co-ordination of Railway and Highway Service

Vol. 83, No. 17 October 22, 1927

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The Month's News

THE past few weeks have been like those that preceded them in being marked by additional new development with respect to motor bus and truck operation by the steam railways. The two items of news which are of the greatest significance and interest concern the Baltimore & Ohio and the Southern Pacific. The former appears to have won the battle which has been waged in the courts of West Virginia for many months over its right to carry out its plan of operating motor buses in that state. The latest decision, which upholds the Baltimore & Ohio, is published in this issue. In substance, it is to the effect that when there is competition for bus line certificates between established carriers and those like independent bus operators who are newly entering the business of transportation, the established carriers, the railways, should be granted the certificates. The importance of this decision to the Baltimore & Ohio and to other railways, not only in West Virginia but in all the other states, cannot be over emphasized. The Southern Pacific figures prominently in the news because of its beginning a quite extensive bus operation in Oregon, involving several hundred miles of line and more than 40 motor buses. Some such striking action as this has been expected ever since the Southern Pacific organized its bus operating subsidiary, the Southern Pacific Motor Transport Company. This news supplies the verification of the belief that the Southern Pacific would lose no time in getting a large system of supplementary bus lines into service. Other items of news involve the Seaboard Air Line, which, in addition to two bus lines now in operation in North Carolina, has just began the operation of an additional one in Florida; the New Haven which has began the operation of buses through from Boston to New York; the Denver & Rio Grande Western, which is continuing to replace passenger trains on its branch line with buses, having just received certificates covering two additional routes; and the Chicago & Alton which is proposing a St. Louis-Kansas City bus line.

Inspections on Mileage Basis Approved

AN endorsement of the procedure in maintaining motor buses and trucks involving inspection of their parts on a mileage basis was given by the Committee on Motor Coaches at the American Electric Railway Association convention. Under the mileage basis inspection plan certain parts, which have to stand up under the heaviest wear, are inspected every 1,000 miles, other parts every 2,000 miles, still other parts every 5,000 miles, etc. The purpose of such inspections is to enable preventive maintenance, by which is meant maintenance before breakdowns rather than after them. The system of scheduling inspections on a mileage basis is in effect on most of the principal bus lines operated by railways and others. It was recommended by the A. E. R. A. committee because it enables maintenance to be carried out on a unit basis, because it results in minimum time consumption for repairs, and because it aims to avoid difficulties on the road. It appears to be the soundest and most efficient maintenance plan that has yet been devised.

Long Railway Bus Lines Increase

ONE of the most interesting developments of the last few months has been the rather unexpected increase in the number of long bus lines operated by the railways. The idea had been pretty firmly held that railway bus lines would be short, probably not exceeding 75 miles in length. It was thought that such short lines would meet the only real need for additional, inexpensive service, and that for longer journeys the trains would continue to render all the service necessary. The bus was looked upon merely as a means of providing short haul transportation for passengers and as a vehicle of no real value in furnishing long haul transportation. In the face of this theory, however, a number of bus lines considerably exceeding 100 miles in length have been established by railways. The Boston & Maine; the Spokane, Portland & Seattle; and the Denver & Rio Grande Western each have such a "long" bus line, and the Great Northern has a number of them. Even these are made to appear short in comparison with some railway bus lines which have just been placed in operation or which soon will be. One such line is that of the Union Pacific, extending from Portland, Ore., to Pendleton, a distance of well over 200 miles. Another line of similar length is that of the Southern Pacific from Portland, Ore., to Ashland, a distance of more than 300 miles. Another is the new New Haven bus line between New York and Boston. And the latest is the proposed bus line of the Chicago & Alton, to extend across the state of Missouri from St. Louis to Kansas City. In the judgment of these railways, the motor bus is useful in coordination with railway service, not only between points situated fairly close together, but also on lines of considerable length. Whether still longer bus lines will be operated by the railways will depend probably upon the success of the existing bus lines of considerable length. Some of the most successful independent bus lines are several hundred miles long.

A. E. R. A. Convention Shows Bus Trends

MUCH information of interest and value came out of the convention of the American Electric Railway Association, which was held in Cleveland, Ohio, during the first week in October, and which was well attended by officers of steam railways. The exhibits of buses and bus equipment were well worth studying because of the evidence they offered that progress in the direction of equipment of greater efficiency is still being made. There are fully as great interest, however, in the proceedings of the meetings held during the convention. The electric railways have now being operating buses for a number of years and are therefore in a position to speak with some authority on matters relating to bus operation, both in replacement of and supplementary to railway operation. One committee, which had gone into the question of whether or not the operation of buses by electric railways is worth while, reported that it was able to find only a few isolated instances where electric railways thought that their bus operations should not have been undertaken. Almost none of the electric railways, however, were able to report exactly what bus operation had meant to them in dollars and cents, and the committee pointed out the example of the steam railways in keeping a close check on the savings resulting from bus operation as one which the electric railways should follow. Another committee, reporting upon general conditions of the bus transportation industry, stated that there is evidence of increasing independent operation of motor buses, particularly in long distance service. The committee also stated that as a broad generality it is probable that the electric railways will operate more buses next year than this year, but many electric railways have indicated that they have reached the limit to which they intend to expand their bus operations. These and other reports indicated that the business of bus operation is now much less subject to the hysteria which marked it a few years ago. Buses are more and more being put into service only where it can be definitely established that their operation is economically justified.

Value of Tractor and Trailer Service Recognized

THE best proof of the high value placed by the North Shore Line upon the service rendered by its tractors and trailers is the steady increase of the size of its fleet of this equipment. As described in an article in this issue of the Motor Transport Section, the North Shore Line had an operating situation in Chicago which rendered it extremely difficult to secure and handle freight traffic in any respectable amount on its 80-mile line from Chicago to Milwaukee, Wis. When the North Shore Line set about to find a solution of these difficulties, the idea was conceived of establishing off-line freight stations, to be connected with the railway line north of the congested loop district by tractor and trailer operation. The plan immediately proved to be a success, as evidenced by the increasing freight business that the North Shore Line is handling. The company is now so completely convinced of the economy and efficiency of tractor and trailer operation that it is constantly seeking to devise new ways in which such equipment can be used. The case of the North Shore Line is similar to that of steam railways having extensive truck, tractor and trailer operations. Without exception these have been built up in consequence of the success of small initial operations of an experimental nature. Only through an actual test can the capabilities of motor operation in any specific instance be determined.

B. & O. Wins Its West Virginia Bus Case

IN a majority decision the Supreme Court of Appeals of West Virginia has affirmed an order of a lower court directing the State Road Commission to authorize bus operation by subsidiaries of the Baltimore & Ohio and an electric railway. The commission had refused to authorize operations by the railways on these routes but had granted certificates covering them to independent operators. The court holds, inasmuch as the public policy of the state requires the protection of public utilities from unreasonable competition, that when an existing carrier is one of several applicants for bus permits between points already served by it, the State Road Commission should give it preference over other applicants. This preference, it holds further, should generally be given regardless of priority of other applications.

The appellants contended that all property rights of a railway were confined to its right-of-way and did not extend to parallel highways. They based this contention largely on a toll bridge case, dating back to 1837, in which it was held that a bridge franchise not made exclusive could not be so construed, and that another such bridge might be chartered which would impair or destroy the value of the first. The court stated that the maxim, "Competition is the life of trade," had long been rejected as a sound economic principle applicable to public utilities. Cases cited by the appellants relating to instances of bus lines being authorized despite railroad protests were said not to apply in this case, since in the former the railroads were not themselves proposing bus operation and it was determined that the existing railroad service was inadequate.

Thus, apparently, is overcome the principal obstacle to railroad bus operation in West Virginia, provided no appeal is allowed. Not only in that state, however, but in others as well has the decision importance. The clarifying of this basic point ought to be of material help to railroads elsewhere confronted with the possibility of having to meet a similar issue. The decision apparently extends no comfort to railroads which might wish to keep independent bus lines out of their territory, without offering bus service themselves, if by any chance such service could be shown to be of public convenience —as that term is legally interpreted. The gist of the decision appears to be that buses will be authorized in railroad territory if public convenience demands them, but railways, steam and electric, should be given the first opportunity to establish the bus service. The decision is published virtually in its entirety elsewhere in this issue.

Existing Carriers Given Prior Highway Rights

West Virginia Supreme Court holds of several applicants for bus certificates rail carrier is to be preferred

THE Supreme Court of Appeals of West Virginia has handed down a majority decision in three grouped cases involving the Baltimore & Ohio and an electric railway and their highway subsidiaries on the one hand, and two independent bus operators and the State Road Commission on the other. This decision affirms one of the circuit court of Kanawha county, requiring the State Road Commission to permit the railways' subsidiaries, rather than independents, to operate buses on two routes.

The electric railway involved is the Monongahela West Penn Public Service Company and its highway subsidiary is the Monongahela Transport Company. The Baltimore & Ohio's subsidiary is the West Virginia Transportation Company. These subsidiaries were organized by the railways to operate bus lines for the purpose of providing additional service and protecting themselves from injurious competition by independent bus lines.

The Reynolds Taxi Company applied to the State Road Commission for authority to operate buses between Clarksburg and Buckhannon, via Jane Lew and Weston (approximately 50 miles). The railway subsidiaries, the Monongahela and the West Virginia filed protests against the granting of this application and themselves applied for authority to operate over a portion of the route, i.e., between Weston and Buckhannon (approximately 25 miles). Also, another independent, the Bartlett Brothers Bus Company, applied also for authority to operate between Clarksburg and Grafton (approximately 22 miles). The B. & O.'s subsidiary protested this and in turn requested authority to operate on the same route. After a full hearing the Road Commission granted certificates to the independents, denying the applications of the railway subsidiaries.

"The public policy of this state, as expressed in legislative enactments, requires that public utilities be given reasonable protection from detrimental competition. Wherefore, when an existing carrier is one of several applicants for a permit to operate motor buses over a highway between points served by the railroad of the carrier, and it is fully qualified to render the additional service proposed, the State Road Commission should ordinarily give the preference to the carrier."

The railways and their subsidiaries then applied to the Circuit Court of Kanawha for writs of certiorari which were awarded them, the court deciding in favor of the railways. The decision was appealed by the independents, and is now affirmed by the Supreme Court of Appeals.

The Supreme Court's majority decision, because of its sweeping nature and because of the likelihood of its adaptability for citation in other jurisdictions where railroads are faced with similar problems, is herewith reproduced substantially in its entirety:

No. 6005—*Monongahela West Penn Public Service Company* and *Monongahela Transport Company v. The State Road Commission of West Virginia, Reynolds Taxi Company et al.*

No. 6006—*The Baltimore and Ohio Railroad Company* and *West Virginia Transportation Company v. The State Road Commission of West Virginia, Reynolds Taxi Company et al.*

No. 6007—*The Baltimore and Ohio Railroad Company* and *West Virginia Transportation Company v. The State Road Commission of West Virginia, Bartlett Brothers Bus Company et al. Upon certiorari*, affirmed.
Hatcher, President.

1. Under Sec. 82, Ch. 17 of the Acts of the Legislature of 1925, no permit to operate motor vehicles for public transportation for hire shall be issued by the State Road Commission until it be established upon a proper investigation that the privilege so sought by the applicant is necessary or convenient for the public, and that the proposed service is not then being adequately performed by any other persons, partnership or corporation.

2. The public policy of this state, as expressed in legislative enactments, requires that public utilities be given reasonable protection from detrimental competition. Wherefore, when an existing carrier is one of several applicants for a permit to operate motor buses over a highway between points served by the railroad of the carrier, and it is fully qualified to render the additional service proposed, the State Road Commission should ordinarily give the preference to the carrier.
Hatcher, President.

These cases are here on writs of error to judgments in certiorari of the circuit court of Kanawha county. The appellants heretofore challenged the jurisdiction of the circuit court herein, by separate petitions in prohibition filed in this court. Our decision thereon was rendered Feb. 8, 1927, and is reported in 136 S. E. 833. The history of the several proceedings to that date as stated there is for convenience copied here:

The Monongahela West Penn Public Service Company owns and operates, as a public carrier in West Virginia, a system of electric railway lines. For the purpose of providing additional service and protecting itself from injurious competition by independent bus lines, it organized the Monongahela Transport Company to operate bus lines in territory served by its electric railway system. The Baltimore & Ohio Railroad Company, owning and operating steam railways as a public carrier in this state, for like reasons and purpose, organized the West Virginia Transportation Company.

Upon application being made by the Reynolds Taxi Company for a certificate of convenience to operate motor vehicles carrying passengers for hire between Clarksburg and Buckhannon, by way of Jane Lew and Weston, the Monongahela West Penn Public Service Company and the Baltimore & Ohio Railroad Company filed protests thereto and caused their subsidiaries, Monongahela Transport Company and West Virginia Transportation Company, to apply for a certificate of convenience to operate motor vehicles carrying passengers for hire between Weston and Buckhannon. And, an application being made by Bartlett Brothers Bus Company for a certificate of convenience to operate motor vehicles carrying passengers for hire between Clarksburg and Grafton, the Baltimore & Ohio Railroad Company filed a protest thereto, and, through its subsidiary, the West Virginia Transportation Company, applied for a similar certificate of convenience. After a full hearing the road commission granted the applications of the Reynolds Taxi Company and the Bartlett Bros. Bus Company, and refused those of Monongahela Transport Company and the West Virginia Transportation Company. Thereafter the circuit court of Kanawha county, on applications of Monongahela Transport Company, Baltimore & Ohio Railroad Company and West Virginia Transportation Company awarded writs of certiorari to the rulings of the state road commission, and these proceedings followed.

Prohibition was denied, and the cases were heard by the circuit court. It set aside the order of the Commission in each case and awarded certificates of convenience to West Virginia Transportation Company over the routes from Weston to Buckhannon and from Clarksburg to Grafton.

Error is charged to the circuit court on procedure as well as the merits.

The order of the Commission awarding the several certificates to the petitioners was entered on July 19, 1926. The applications for the writs of certiorari were made on Aug. 6, 1926. During

that interval the petitioners expended some time, labor and money in preparing to exercise their rights under the awards. They now contend that the failure of appellees "to disclose their intention to contest the Commission's orders and in delaying the filing of their petition" in the circuit court, is such laches as calls for reversal. The evidence shows, however, that appellees did not receive from the Commission notice of its rulings until Aug. 2. A delay of only four days in preparing and filing the petitions herein was not unreasonable, and does not constitute laches.

Appellants also contend that the records of the commission's proceedings, which were before the circuit court can not be considered, because they do not comply with Sec. 3, Ch. 110, Code, as construed in *Bee v. Seaman*, 36 W. Va. 381, Cushwa v. Lemar, 45 W. Va. 326, and other decisions of this court; and because they do not purport to include such facts as the Commission may have obtained upon its own "proper investigation."

Certain exhibits were filed by these appellants in the prohibition, cases, which their petitions averred were copies of the records in the several proceedings had before the Commission in which appellants were awarded the certificates under consideration. While the prohibition cases were pending here, the files of the Commission were destroyed by fire. In order to make as complete a return as possible to the writs of certiorari the Commission secured from this court the very exhibits which appellants had filed in the prohibition cases, and tendered them to the circuit court as "complete records." The return did not allege that the Commission made any investigation not appearing in the records. It is those very records which appellants now seek to discredit.

After proffering those records in the prohibition proceedings the appellants will not be permitted to question them in these cases. "A party cannot either in the course of litigation or in dealings in pais occupy inconsistent positions. Upon that rule election is founded; "a man shall not be allowed," in the language of the Scotch law, "to approbate and reprobate." Bigelow on Estoppel, 6th Ed. 732. "Parties will not be permitted to assume successive inconsistent positions in the course of a suit or series of suits in reference to the same fact or state of facts." *MacDonald v. Long*, 100 W. Va. 551.

The Merits

Appellants contend in these cases as they did in the prohibition cases, that the sole power to grant or refuse certificates of convenience has been vested in the Commission by the Legislature. We decided in the prohibition cases that the rulings of the Commission herein were subject to judicial review. That decision is *res adjudicata* and further argument thereon is fruitless. Upon such review Sec. 3, Ch. 110, Code requires the circuit court to "determine all questions arising on the law and evidence and render such judgment or make such order upon the whole matter as law and justice may require." The plain language of the statute indubitably conferred upon the circuit court jurisdiction to make the awards contained in its order without referring the cases back to the Commission. Cases 6006 and 6007, respectively, involve simply a choice of applicants for a permit to operate a bus line. In each case both applicants are fully able to render adequate service to the public. In each case the Commission preferred the appellant, presumably because of priority of application, as the evidence discloses no other advantage over the other applicant. In each case the circuit court reversed the Commission and gave the preference to the appellee, presumably to safeguard a large railway investment along or near the route in question. Consequently, the single inquiry presented in each of these cases is, which applicant does law and justice favor.

Appellants assert that all property rights of a railroad are confined to its right of way; that its rights do not extend to parallel highways; and that it has no legal priority to pre-empt the field of motor bus transportation, to the exclusion of other applicants desiring to render like service. Appellants rely largely on *Charles River Bridge v. Warren Bridge*, 11 Peters 420, and kindred cases in support of their position. The gist of the Bridge case decision is that grants of privileges from a state are strictly construed; that nothing passes by implication; that a toll-bridge franchise, not made exclusive, will not be so construed, and that another bridge may thereafter be chartered in the same vicinity, impairing or even destroying the value of the first bridge.

That case was decided in 1837. Then "Competition is the life of trade" was accepted as a guiding maxim of economics. That maxim has long since been rejected so far as it applies to public utilities. Uncontrolled competition is now regarded as destructive of such utilities. In 1837 the state watched with indifference one public utility stifle another. Now the state controls its public utilities and as an incident of its regulatory power acknowledges a duty to protect them. As a part of that protection the state now guards against unnecessary duplication of public utilities. Consequently, the decision in the Bridge case is not applicable to cases like these, where regulated utilities are concerned.

The appellees make no claim to exclusive charter right or specific legal or statutory grant of priority of right to pre-empt bus service on our highways. Their position may be summarized as follows: The railroads perform certain vital services to the public which bus companies cannot perform, and therefore must be preserved; the railroads have large investments, and to make adequate returns thereon as well as to maintain their roads, equipment and service properly need all the income available under present rates and conditions; competitive bus companies will divert a material amount of travel from the railroads, thereby diminishing the revenues of the latter; reduced revenues will necessarily cause one of two things, (a) rates will be raised to meet the loss thus occasioned, or (b) the efficiency of railroad service will be impaired; either contingency will seriously affect the general travelling public; but these contingencies may be avoided by permitting the railroads or their subsidiaries to render and receive the emoluments from the bus service, which would otherwise be competitive; that because of greater resources the railroads afford greater security to the public in performing bus service than that offered by the ordinary bus companies; and that the interests of the public will therefore be better served by giving the existing carriers the preference over other applicants for certificates of convenience.

The railroads perform certain vital services to the public which bus companies cannot perform, and therefore must be preserved; the railroads have large investments, and to make adequate returns thereon as well as to maintain their roads, equipment and service properly, need all the income available under present rates and conditions; competitive bus companies will divert a material amount of travel from the railroads, thereby diminishing the revenues of the latter; reduced revenues will necessarily cause one of two things, (a) rates will be raised to meet the loss thus occasioned, or (b) the efficiency of railroad service will be impaired; either contingency will seriously affect the general traveling public; but these contingencies may be avoided by permitting the railroads or their subsidiaries to render and receive the emoluments from the bus service, which would otherwise be competitive; that because of greater resources the railroad affords greater security to the public in performing bus service than that offered by the ordinary bus companies; and that the interests of the public will therefore be better served by giving the existing carriers the preference over other applicants for certificates of convenience.

The argument of the railroads has met the approval of court and Commission. "Railroads have permanent road-beds and trackage which require an outlay of millions of dollars and which in turn yield large revenue to the people of the State. The average bus line is incorporated for a comparatively small sum. The railroad is of vastly greater financial responsibility. This is a matter of substantial public interest, particularly in cases of accident. It is the established policy of the law in this State that a public utility be allowed to earn a fair return on its investments. It is therefore not only unjust but poor economy to grant to a much less responsible utility company the right to compete for the business of carrying passengers by paralleling its line unless it appears that the necessary service cannot be furnished by such railroad. Appellants offer to provide whatever increase in accommodations and service is deemed essential to meet the public convenience and necessity. It is but consonant with our law regulating public utilities that they be given an opportunity to do so." *Egyptian Trans. System v. L. & N. R. R. Co.*, 321, 111, 588. In accordance therewith are the folowing Commission decisions: *Washington R. R. & E. Co. v. Transit Co.* (Dist. of Col.) P. U. R. 1922 C. 754, *Re Blue and Gray Bus Line* (Utah) P. U. R. 1924 A. 449, (which goes so far as to yield to railroads a "natural preferential right to extend service instead of permitting competition by an auto bus company"); *Re United Stages* (Cal.) 1924 D. P. U. R. 762; *Re Wentworth*

(N. H.) Order No. 1759, Dec. 22, 1925; *Re Maine Motor Coaches Inc.*, (Me.) P. U. R. 1926 B 545. (Citing decisions from the Commissions of 27 states as "in harmony" with the conclusion reached in that case.) The foregoing decisions are only one step in advance of, and are the logical conclusion to the masterly opinion written by Judge Miller in *Power Company v. Calloway*, 99 W. Va. 157 (163) wherein he declares the policy of this State in regard to railroads.

The policy of the state as evidenced by the road law and of the statutes relating to the public service commission, its powers and duties, is not to invite or encourage ruinous competition between public carriers; on the contrary its policy is to protect such public servants in the enjoyment of their rights, so that the public may be served most efficiently and economically, and by the best equipment reasonably necessary therein. As illustrative of the application of this power respecting public carriers, see *Chesapeake & Ohio Ry. Co. v. Pub. Ser. Com.*, 75 W. Va. 100, Id. 78 W. Va. 667.

With the burden and duty thus imposed upon a carrier and the public control thereof established by law, is not the state under the moral, if not the legal obligation, to give reasonable protection, consistent with the public weal, to the rights and franchises of such public service corporations? We think it is. As evidence of the protection which the state intended giving public carriers with permits under the state road law, the Act of 1923, amending the law of 1921, provides that no such permit shall be issued until it shall be established to the satisfaction of the commissioners that the privilege, etc. is necessary or convenient for the public, and that this service, etc. is not being adequately performed by *any other person*. Observe also to what extent the law protects established ferries and toll bridges, and provides against the incursion of unauthorized and ruinous opposition by unlicensed persons. Chapter 44, Barnes' Code 1923. All this is in the public interest; for unless those with licensed authority are so protected in the reasonable exercise of their rights, they can not live to serve the public well and efficiently.

Priority

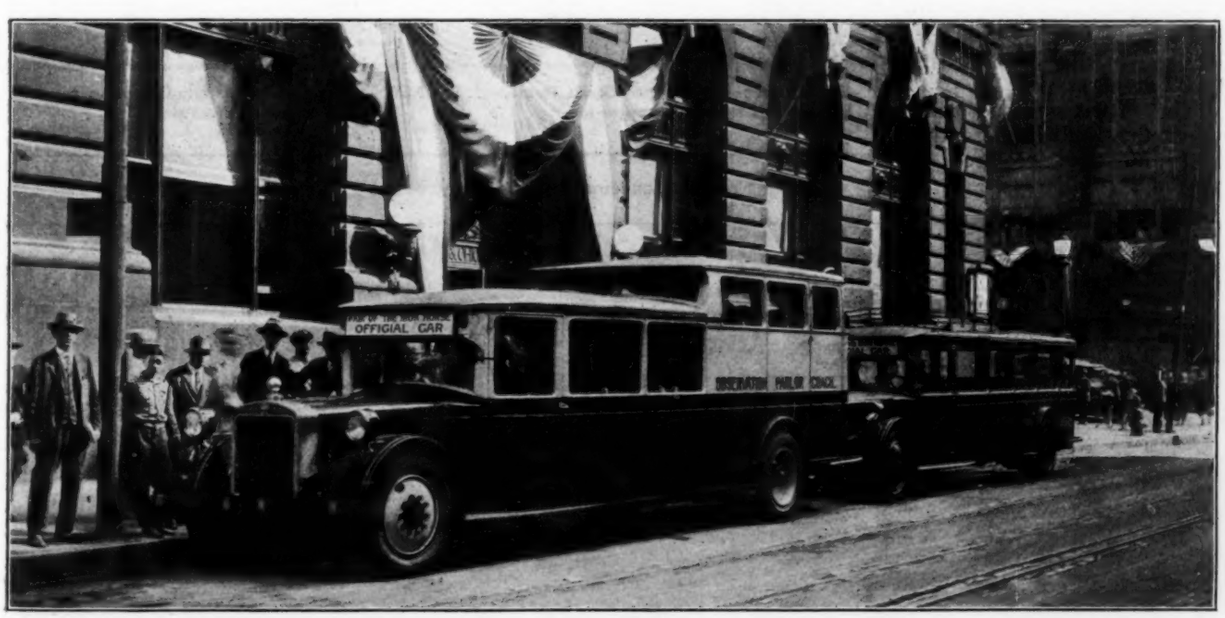
Priority of time in application, while an element to be considered, is not ordinarily of sufficient importance to control the granting of a certificate. *Chicago Motor Co. v. Chicago Stage* Co. 287 Ill. 320, 122 N. W. 477. Law and justice require that mere priority of application should yield to the graver element of public policy, and we so hold in these cases.

Warren-Salem Coach Line Co. v. Commission, (Ohio) 156 N. E. 453, and *Norfolk Southern Ry. Co. v. Commonwealth*, 141 Va. 179, 126 S. E. 82, are cited by appellants as presenting facts similar to, and as supporting their contentions in the instant cases. Those cases, however, did not involve a choice of applicants for the same service. In each case it was determined that the existing service was not adequate and that an additional service was needed. In neither case did the existing carrier seek permission to perform that additional service. Each case rightly makes the public convenience and necessity paramount to the interest of the utility. Neither case is in conflict with our decision here. On the contrary, point 4 of the syllabus of the Virginia case supports it; "Upon application by a motor vehicle carrier for a certificate of convenience and necessity, existing transportation systems should be protected so far as compatible with the public interest."

Case No. 6005 involves the cancellation by the circuit court of the certificate of convenience issued to the Reynolds Taxi Company over the route between Clarksburg and Weston. The evidence shows that eighteen electric cars and three railway trains operate daily each way between these two points. R. T. Reynolds, the chief witness for the Taxi Company, stated that there were forty-two families between Gusman's Bridge and Deanville (two intermediate points between Clarksburg and Weston), that do not reside close to either a railroad or traction stop. In commenting on the general service of the electric cars between the terminal points, the witness made this admission: "I know they give them hourly service, and pretty good service I call it, whether adequate service or not I am not in position to know." Before such a certificate shall be issued the statute requires it to be established that the privilege sought is necessary or convenient for the public, and that the service so proposed is not being adequately performed by another. Courts and Commissions construing statutes similar to ours have uniformly held that the necessity and convenience referred to is that of the public generally as distinguished from that of a number of individuals or a community, and that the inadequacy of the existing service and the convenience or necessity of the proposed service must both affirmatively appear from the evidence. *Choate v. Commission*, 309 Ill. 248; *McLain v. Commission*, 110 Ohio St. 1; *Re Motor Transit Co.* (Cal.) P. U. R. 1922 D. 495; *Re Jitney Applications* (R. I.) P. U. R. 1922 E. 612; *Re Paradox Co.* (Col.) P. U. R. 1923 E. 759; *Re Alabama Power Co.* (Ala.) P. U. R. 1923 E. 828 (832); *Re Branham* (Ariz.) P. U. R. 1924 C. 500; *Re United Stages* (Cal.) P. U. R. 1925 A. 688. The record discloses no demand for additional carrier service between Clarksburg and Weston either by the general public or by the Gusman's Bridge-Deanville segment. It fails to establish as an evidential fact that the existing carriers do not serve *the general public* adequately. It therefore does not justify the granting of a certificate of convenience between Clarksburg and Weston, and the cancellation of the certificate by the circuit court was proper.

The order of the circuit court in each case will be affirmed.

Judge Woods gave a dissenting opinion.



Two A. C. F. Buses Were Used to Transport B. & O. Officers Between the Company's Headquarters at Baltimore and the Halethorpe Exhibition

N. E. T. Starts Boston-New York Service

THE New England Transportation Company, bus operating subsidiary of the New York, New Haven & Hartford, on October 1 began the operation of motor coach service between New York and Boston.

Buses leave the Consolidated Coach Terminal Park square, Boston, each day at 9 a. m. and 9 p. m, and at the same time from the Waldorf-Astoria Coach Terminal in New York. The schedule for the trip (approximately 240 miles by road) varies from 11 hours and 25 minutes to 11 hours and 40 minutes, including stops for meals and for rest to passengers.

The buses used in this service are the A. C. F. "Newell" type, described in the *Motor Transport Section* of August 27, page 418. This coach, which has the rear portion elevated somewhat, gives unusual observation facilities and provides additional space for baggage storage. In the company's time table folder it features the deluxe and comfort qualities of this service and the scenic advantages of the trip by bus.

This new route parallels the railroad's main line between New York and Boston. The railroad fare for the trip is $8.26, whereas the bus fare is $6.50 for the day ride and $5.00 at night.

The fastest railroad trains cover the route in less than half the time required by the buses.

RAILWAYS in France are using motor bus service in the French Alps because this is more rapid than horse service and less expensive than rail operation, according to Auguste Pourcel, chief engineer of the Paris, Lyons & Mediterranean Railway, in a recent report to the International Chamber of Commerce, made public by the National Automobile Chamber of Commerce. Mr. Pourcel states that the P., L. & M. used 22 motor lines in 1911 and is using 156 motor lines today.

Announcement in Company's Time Table Folder

Type of Buses Used

The First Double-Deck Garford Buses Operated

South Australian Railways Meet Motor Competition

Forty-six buses and 41 *trucks supplement service on rails*

By G. T. Powlesland

Special Representative General Traffic Manager's Office, South Australian Railways, Adelaide

IN common with railways in other parts of the world, the state railways of South Australia are experiencing motor competition for both freight and passenger traffic, and after a careful survey of the situation, the chief commissioner, W. A. Webb, has established a motor branch of the railways to cope with this inroad into the state revenue.

On February 5, 1925, a passenger service was inaugurated between Adelaide, the capital city of the state, and Victor Harbor, a seaside resort distant 52 miles by road, and 82 miles by rail. This was followed later by services from Adelaide to Gawler, 26 miles, Adelaide to Ashbourne, 38 miles, Adelaide to Mannum, 58 miles, Paskeville to Yorketown, 78 miles, and Collinsfield to Port Broughton, 18 miles. To cope with the competition between Adelaide and Glenelg, a seaside resort 7 miles distant, a fleet of double-deck omnibuses was placed in commission on March 27, 1926. The bodies were designed and constructed at the railway workshops at Islington, 4 miles from Adelaide, on Garford C. B. chassis, fitted with six cylinder engines of 48 hp. The six wheels, dual at rear, have 36 in. by 8 in. pneumatic tires, and each vehicle is fitted with Westinghouse brakes. Seating accommodation is provided for 57 passengers, 23

A 3-Ton Thornycroft Truck

Part of the Fleet of Parcel and Baggage Trucks

on the lower deck and 34 on the top deck, and a conductor is assigned to each omnibus, in addition to a motorman. There are at present 29 omnibuses of this type in operation on suburban routes, and no less than 2,200,000 passengers have been transported. The greatest number carried in one day was 18,741.

To combat competition by privately owned motor trucks in the conveyance of freight between Adelaide

A 5-Ton Load on a Garford Truck

and several important towns within a radius of 60 miles, the state railways are now successfully operating a daily freight service between Adelaide and Gawler, 26 miles, Adelaide and Murray Bridge, 51 miles, and Adelaide and Victor Harbor, 52 miles. Freight trucks of 5 ton capacity fitted with solid rubber tires were installed in this service.

A road motor service for the collection and delivery of freight between Adelaide and suburbs and the chief Metropolitan freight depot was also inaugurated, and has been well patronized from its inception, for not only can

Interior View of Bus and Truck Garage

freight be booked for quick delivery by motor vehicles from the chief Metropolitan freight depot to any point in Adelaide or suburbs, but it can also be collected in Adelaide and suburban areas for conveyance to the depot for transit by rail. Previously the delivery and collection of parcels and baggage was undertaken by horse-drawn vehicles, but since the inauguration of the motor truck service, there has been a considerable increase of revenue. Railway travelers from country centers may book their baggage for prompt delivery after arrival in Adelaide, and the trucks call at any suburban address and convey baggage to the Adelaide passenger station for checking through to destination in South Australia or to any other state in the commonwealth.

The state railways are now operating 87 omnibuses and freight and parcels trucks of the following types:

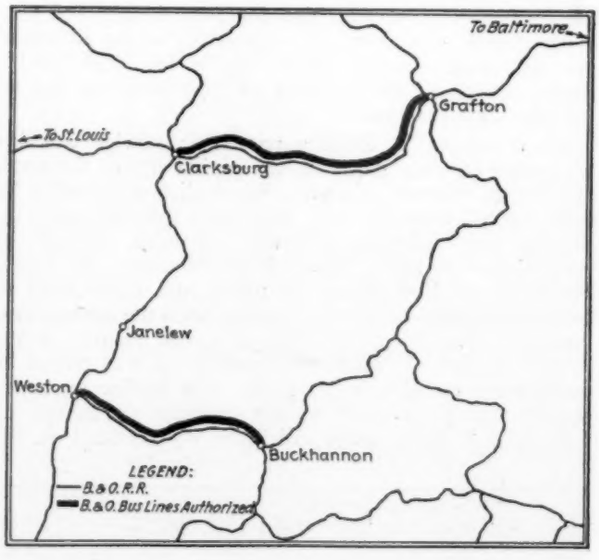
Double-deck buses (Garford)	29
Single-deck buses (Fageol)	11
Single-deck buses (White)	5
Single-deck bus (Reo)	1
Parcels Delivery Vans (Morris)	16
Freight Trucks (Thornycroft)	4
Freight trucks (A. E. C.)	10
Freight trucks (Garford)	11

A suitable and modern garage with workshops, inspection pits, store room, battery room, staff quarters and all conveniences has been constructed adjacent to the Adelaide railway station, and 1,000-gal. petrol or gas tanks have been provided underground with the Lasco Flow system of gassing the vehicles outside the garage.

The omnibus and motor truck service constitutes an important adjunct to the steam services of the South Australian Railways, and is adding considerably to the revenue besides providing a more efficient and mobile transportation than is possible with the steam road. This branch of the railways is under the immediate supervision of the general traffic manager, Alfred N. Day.

B. & O. Bus Routes Authorized

AS noted on another page of this issue, the State Supreme Court of West Virginia has authorized the B. & O. through its subsidiary, the West Virginia Transportation Company, to operate motor buses between Clarksburg, W. Va., and Grafton (22 miles) and between Weston and Buckhannon (25 miles). The question of granting of these certificates has been at issue for more than a year, the State Road Commis-



sion having given preference to independent operators for these routes and the railroad appealed to the courts, the highest court in the state now having decided in its favor.

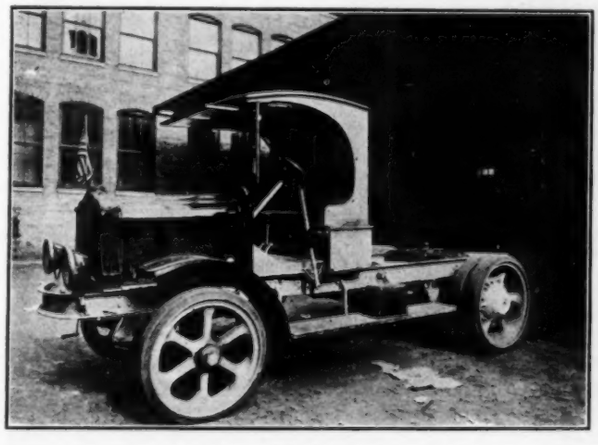
The court's decision was scheduled to be mandatory on October 20, but there were rumors that the unsuccessful litigants were going to file an application for a rehearing in this case, which might delay mandatory action somewhat. The railroad stands ready to begin operation on these two routes on short notice after it is finally decided that there is no likelihood of any further court action in the case.

Trailers in Place on Flat Car

Tractors and Trailers Used by North Shore Line

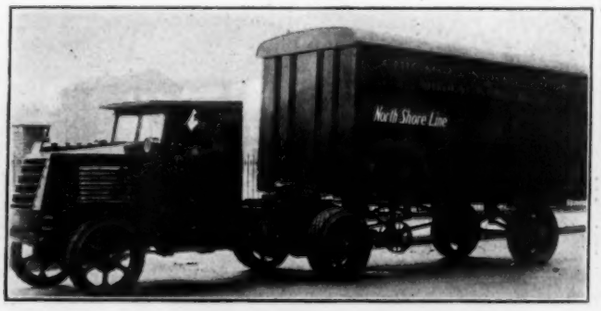
L. c. l. freight transported by motor vehicles from inland stations in Chicago to north side rail station

FOUR inland freight stations for the receipt and delivery of l.c.l. freight are maintained by the Chicago, North Shore & Milwaukee (electric) in Chicago, and freight is handled between these stations and a freight station adjacent to the tracks of the company on the north side of Chicago by means of a fleet of tractors and trailers. Prior to the installation of the



One of the 10 White Tractors Used

tractor and trailer service the North Shore Line was handicapped in its bid for freight business because it used the tracks of the elevated railways in the city of Chicago and was consequently unable to move freight over these lines except late at night. Under the present arrangement, however, it is able to keep an even flow of traffic moving in the day-time from its strategically lo-



Twenty-two New Trailmobiles Have Just Been Put in Service

cated stations to the north side of Chicago for loading into electric trains operating on its own tracks. Rates apply from and to these inland stations.

The inland stations of the North Shore Line, which are connected with its rail stations by tractors and trailers, are located in the downtown, west side and south side sections of Chicago. The largest station is the downtown station, the outbound house being located at Franklin and Austin streets and the inbound house at Franklin and Wells streets. The other stations are located at Polk and Racine streets, Laramie and Harrison streets, and the stock yards. The on-line station is at Montrose avenue, about six miles north of the down-

town stations and proportionately greater distances from the west side and south side stations.

White Tractors, Trailmobile Semi-Trailers Used

The fleet of motorized equipment operated by the North Shore Line comprises 10 five-ton White tractors, manufactured by the White Company, Cleveland, Ohio, and 50 eight-ton semi-trailers manufactured by the Trailmobile Company, Cincinnati, Ohio. The semi-trailers are 17 ft. long, 7 ft. wide and 6 ft. high. These

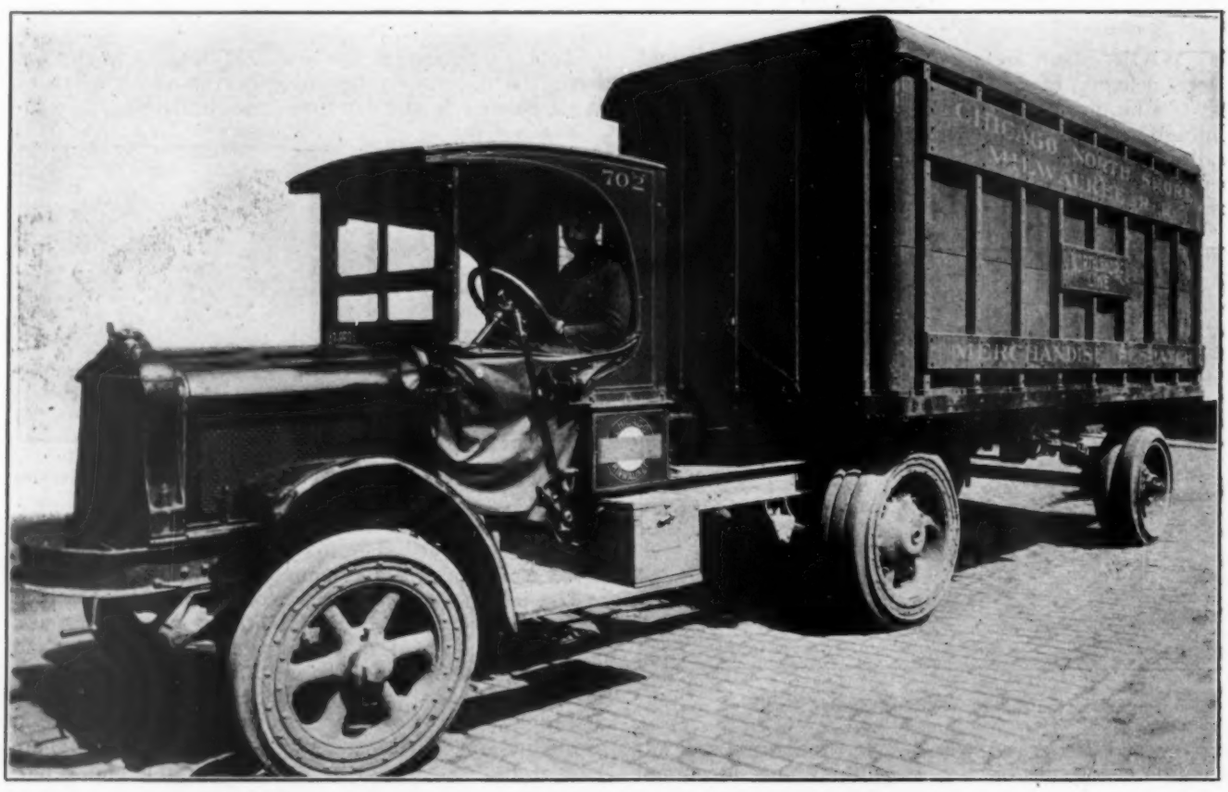
Flat Car Equipped for Carrying Complete Trailers

trailers are equipped with doors at the rear end only, which may be locked and sealed. The bodies and doors are constructed of steel and are completely waterproof.

The downtown freight houses of the North Shore Line, which are larger than the others but may be considered typical in other respects, have dimensions of 60 ft. by 40 ft., and 80 ft. by 40 ft. Each freight house consists merely of a platform covered by a roof. One side of the platform is used by the trucks and teams of shippers and consignees, and the other by the trailers of the railway. With the truck of the shipper backed in on one side and the trailers of the railway backed in on the other, freight is loaded directly from the trucks across the platform into the trailers.

Unbalanced Movement of Freight

From 250 to 500 tons of l.c.l. freight are handled in and out of Chicago each way daily by the North Shore Line. On account of the fact that its trains carrying l.c.l. freight move only in the evening and at night and that overnight deliveries are required at destinations such as Kenosha, Wis., Racine and Milwaukee, the northbound movement by tractor and trailer is made under load only in the afternoon and evening, while the southbound movement under load is made only in the early morning, the latter being a movement of freight from the north shore cities inbound to Chicago. Consequently about half the mileage of the tractors and trailers is made light, since there is no southbound traffic in the afternoon and no northbound traffic in the morning. It has been the experience of the North Shore Line that up to 3 p. m. there is little outbound traffic to be taken care of, so that the first tractor and trailer loaded with outbound freight usually do not leave the downtown station until about 3:30 p. m. From this time on the outbound freight comes into the stations from the shippers in large volume and loading is generally not completed until 6:30 or 7 p. m. The trailers usually carry about five tons of l.c.l. freight. As soon as enough freight is available at the rail station on the north side to fill a train of four or five cars, the train is sent out, usually at about 4.30 p.m., after which similar trains follow at intervals of about two or three hours. These



Ten White Tractors and 50 Semi-Trailmobiles Comprise the North Shore Line Fleet

freight cars are really baggage cars equipped with power units, each having capacity for about 20 tons of freight.

The loads carried by the trailers average about five tons, although they range from 2 tons to as high as 14 tons, according to the nature of the freight handled.

Equipment Dispatched to Stations as Required

A dispatcher of the North Shore Line, who has an office near the downtown inland station, has complete control over the movement of the tractors and trailers. No definite scheduled trips are made by them, but the units are moved about as required by each day's traffic. A check upon driver performance and upon the location of the various tractors and trailers is maintained, however, by means of a ticket system. At the time a driver leaves a station with a trailer he is given a ticket on which is stamped his leaving time and he is allowed a certain period of time to reach his destination, varying in accordance with the distance from his starting point. The time allowed for the trip from the downtown freight stations to the Montrose rail station, for example, is 36 min. If a longer time than that scheduled is taken by the driver he is required to explain the reason.

The drivers of the tractors have no contact with the freight, it being loaded into and out of the trailers by truckmen working under checkers. When the trailers are loaded they are locked and sealed as box cars are sealed and the only function of the driver is to back his

Trailers Being Loaded at Inland Station

tractor into the trailer and haul it to its destination station, carrying waybills covering the shipment with him for delivery at the receiving station. With the waybills is sent a list showing every article in the trailer and this is checked when the trailer is unloaded. Prior to the introduction of the system of locking and sealing the trailers, a number of losses of freight were suffered, but these have been now entirely eliminated.

Damage to freight carried in the trailers is negligible. Running over city streets with smooth pavements and being permitted ample time under their schedules to reach their destination without undue speed, the drivers are able to avoid accidents and other causes of damage to freight.

The determination of the actual cost of operating the North Shore Line tractors and trailers has been difficult on account of the peculiar unbalanced nature of the service. It is estimated, however, that the cost of the operation of a tractor and trailer from the downtown inland station to the Montrose rail station is approximately $1.50. This being a six-mile haul, the cost of operation per mile for the tractor and trailer is estimated at 25 cents.

Some Trailers Carried on Flat Cars to Destination

Several months ago the North Shore Line began the experiment of transporting some of its trailers on flat cars straight through from the starting point in Chicago to destination in Milwaukee and vice versa without unloading the freight into freight cars. For this purpose

Tractors Spotted at the Downtown Inbound Station

four flat cars with special attachments for holding trailers into place were put into service. Each of these flat cars will hold two trailers and two of them have been operating each way daily between Chicago and Milwaukee. Under this plan the trailers are hauled by tractors from the inland stations in Chicago or in Milwaukee to the rail station, backed onto the flat cars, locked into position, hauled by locomotives to destination, and there pulled off the flat cars and hauled by tractor.

While this method permits the handling of an average of only 10 tons of revenue freight per car as compared with 20 tons per car handled in the ordinary motor freight cars, since the flat cars have room for only two trailers, this system has effected savings for the North Shore Line, since it has eliminated a number of rehandlings of the freight. Furthermore, when the North Shore Line continues the development of this scheme, it will be able to operate full trains of flat cars loaded with trailers and hauled by a locomotive, instead of trains of only four or five ordinary electric cars. In this way one train of flat cars will replace several trains of ordinary cars. Ten new flat cars equipped to handle three trailers each have been ordered and are soon to be placed in service. This will enable the operation of 7 flat cars, carrying 21 trailers, in each direction between Chicago and Milwaukee daily.

B. & M. Station at Greenfield, Mass.

A B. & M. Transportation Company's Greenfield-Northampton Bus.

Schedules can be Maintained when Roads are Plowed

Railway Bus Lines Get Ready for Winter Operation

Heating and ventilating systems inspected closely and some changes made in lubricants

THE approach of winter finds most railway bus operators, particularly those in the northern part of the United States, making preparations which will enable them to keep their buses operating on schedule and with comfort for passengers in sub-zero weather. The buses operating in the more southerly parts of the United States, such as those of the Norfolk Southern Bus Corporation and the Nashville, Chattanooga & St. Louis Motor Transit Company are not bothered with extra measures to protect their service in the face of snow and low temperatures, but this constitutes a problem of primary importance to the northern bus lines.

The Northland Equips Its Buses with Storm Windows

Preparations for winter operations of bus lines involve not only the mechanical parts of the buses and their facilities for heating and ventilation, but also facilities for keeping the roads clear of deep snow. Operation in the winter imposes extraordinary obstacles in the way of the successful functioning of all parts of the buses themselves and of the bus line organization. To overcome these obstacles extensive preparations are made before winter weather begins and special attention is given to various phases of the operation after winter does set in, to keep the buses running smoothly. The experience of some of the railway bus lines operating in the northern part of the country has indicated that several of the following precautions should be taken in order that scheduled operation may be continued through the winter with comfort for passengers.

Buses Put in Best Possible Condition

The Copper Range Motor Bus Company emphasizes the necessity of the equipment being kept in the best possible condition in the winter time. It makes no special moves to prepare for winter weather, however, since it endeavors to keep its equipment in excellent shape at all times, so that special attention is unnecessary. The Copper Range buses are heated during the winter and the same ventilation system is used in winter as in summer.

On the Rutland Transportation Company the buses are thoroughly inspected and repaired, if necessary, in order that they may be in the best possible condition for winter service. No provision is made for extra heat or ventilation, but the openings around the clutch and brake pedals are attended to in order to make them as weather tight as possible.

The Denver & Interurban Motor Company checks over the bodies of its buses carefully. The heater pipes are removed and cleaned and the heating systems are completely checked for gas leaks. The side windows and front ends are carefully tightened.

The Union Pacific Stages, Inc., thoroughly inspects the heating systems of all its buses to make sure that they will supply an ample amount of heat, and sees that the windows and doors are close fitting, so that no cold air will be admitted when the coaches are closed. The windows are maintained in condition so that they may be readily opened if necessary, should the interior of the coaches become too warm. Special attention is also given to the roof ventilators to insure their being in proper condition, and every precaution is taken to see that the coaches are mechanically in first-class condition. No special provision for extra heat or ventilation is made in the buses.

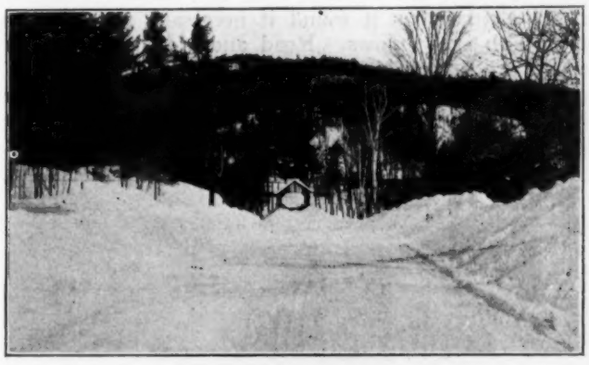
Opinions Differ on Engine Preparations

There seems to be no uniformity in the steps taken by the various operators to insure the successful operation of their motor bus engines in the winter time. The Copper Range Motor Bus Company makes no change in its fuel, lubricating and water systems, nor does the Rutland, except that it adds a suitable proportion of alcohol to the water in the radiators of its buses to prevent freezing, and radiator shields are provided to reduce air circulation.

On the Denver & Interurban, however, lubricating oil with a lower cold test is substituted, and an anti-freeze radiator solution is used in the cooling system. The radiators of the Denver & Interurban buses are equipped with winter front radiator shutters. No changes are made in the fuel adjustments.

The Union Pacific Stages makes no change in the fuel systems of its buses, except that a winter grade of fuel of higher gravity test is secured. It finds that the lubrication of the motor during cold weather must be accomplished with an oil of lighter consistency in order to maintain the same conditions inside the motor as exist during warmer seasons. The extent of the change is governed in all cases by the type of motor used and the lubricating system with which it is equipped. The lubricating grease used in winter is also of a lighter consistency to insure the proper lubrication of running gear mechanism, transmission, differential, etc.

The Union Pacific does not favor the use of a chemical or alcohol in the water system since it believes that these preparations evaporate and, if not tested frequently, lose their freezing resistance, creating a condition more hazardous than when water only is used, inasmuch as the bus operator is at all times looking after the condition of the water in the radiator. The Union Pacific provides its buses with a manually controlled radiator shutter, enabling the operator to keep the motor at the right temperature at all times. Its coaches are provided with dual tire chains for use on icy pavements and in snow.



On a B. & M. Bus Route After Passage of Tractor Plow

Government Agencies Provide Snow Removal Equipment

A few of the larger bus companies, such as the Northland Transportation Company and the Boston & Maine Transportation Company, own and operate snow removal equipment, but in most cases this work is done entirely by local government agencies. The Copper Range has not found it necessary to operate snow removal equipment, since the state of Michigan cooperates with the company in keeping the roads clear. The Copper Range Bus Line is comparatively short and parallel to the railroad, so that it is able to keep informed as to road and weather conditions through its railway employees.

The Rutland does not operate snow removal equipment and its buses are not fitted with snow plows. Such equipment is operated, however, by either state, county,

Snow Fence (in Background) is Useful in Preventing Drifting

or town agencies. Reports of weather and road conditions are supplied by the agents of the Rutland Railroad, who are located adjacent to the highway over which the buses are operated.

The Denver & Interurban has not found it necessary to provide snow removal equipment, depending upon the county maintenance agents who co-operate in every way possible when adverse road and snow conditions arise. Neither has it found it necessary to equip its buses with snow plows. Road and weather condition reports are sent in by its agents and drivers.

The Oregon state highway commission employs a force of men for the purpose of keeping open the main highways of the state, so that the Union Pacific has not

The Boston & Maine Tractor Plow in Operation

had to operate snow removal equipment of its own. The Union Pacific buses, while not equipped with snow plows, are provided with shovels and tow ropes, so that in case they are blocked by snow, rocks on the pavement, or disabled automobiles in the way, they are able to clear the highway and proceed unless the snow is of unusual depth. The weather reports of the United States Department of Agriculture are used by the Union Pacific, and its motor coach operators are required to turn in daily reports of road conditions.

Northland Fights Worst Weather

The Northland Transportation Company, which operates several thousand miles of bus lines in Minnesota, perhaps encounters the severest winter weather conditions of any railway bus line. The methods it uses to overcome the adverse conditions are described by R. W. Budd, manager of operations, as follows:

"We battle perhaps the most severe weather conditions existing anywhere in the country. In order to do this we must have an especially well insulated storm window which we ourselves have developed. In order to keep the buses heated we use the new type of Tropic Aire heater developed here in Minneapolis. This eliminates the gassing of the buses, and the perforating of the floor boards for heater pipes.

"Instead of using a double windshield, as we formerly did, we have simply reinforced the single shield and installed a small electric fan to keep the frost off the entire front window. The doors are sealed from the inside and covered all around with weather strips. We use a manually controlled winter front on the radiators of the buses keeping the bottom six inches always closed.

"We make no changes whatever in fuel, lubrication or water systems, keeping the same oils in our crankcases and no anti-freeze preparations in the radiators.

"We operate but three snow plows which are, in our estimation, exceptionally capable. The state of Minnesota is handling the problem of plowing snow on the main highways, but where the buses travel on secondary roads, or when the snow becomes particularly heavy in one community, our plows are used to relieve the situation. They are Walter 4-wheel drive plows, with special bodies and wings, which plow a 22 ft. span of road 4 ft. deep at a rate of 25 to 35 m.p.h. A pusher is used at all times.

"Our buses are not fitted with plows, as we have found through bitter experience that they are more dangerous than helpful. Weather and road conditions are obtained from reports submitted daily from various communities."

Coach Body Designed For Railway Operators

A "RAILROAD SPECIAL" coach body, adaptable to any chassis of approximately 180-in., 210-in., or 230-in. wheelbase, with a seating capacity ranging from 25 to 39 passengers, has been placed on the market by the Baker-Raulang Company, Cleveland, Ohio. By the following modifications of the basic composite design, suitable bodies are provided for three classes of service: Model 20, pay-enter bodies with a roof height of 26 in., raising windows, city pay-enter interior equipment and folding entrance door; Model 21, suburban bodies, with a roof height of 73 in., either raising or lowering windows and folding or swinging entrance door; Model 22, parlor car bodies with a roof height of 68 in., lowering windows and swinging entrance door.

The frame is constructed of hard wood. Ply wood panels are applied in close fitting rabbets between all standard pillars extending from the belt rail to the body

The Baker "Railroad Special" Coach Body Adaptable to Any Chassis of Approximately 180-in., 210-in. or 230-in. Wheelbase

sill. The floor is constructed of 1⅛-in. fir with the tongues and grooves treated with waterproofing material. The roof bows are covered with ½-in. fir. The body framing is supported with stamped steel gussets and malleable and forged braces. All exterior wood surfaces are metal covered. The lower body panels are formed from 20-gage patent leveled steel. The upper panels are a combination of 20-gage steel and 16-gage aluminum.

The bodies are provided with two emergency doors in either side at the rear, one equipped with a conventional lock and the other with a three-way emergency lock. The body is provided with two-cowl ventilators, two large ventilators over the windshield and six roof ventilators.

The interior is lit with eight 21 c.p. lights and one step light.

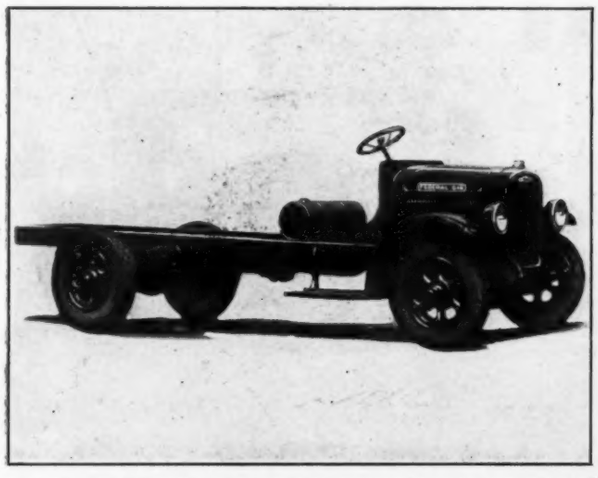
In the suburban and parlor car bodies, the ceiling is trimmed with textile leather or ply wood with enameled or natural finish. The side walls are of textile leather to harmonize with the seat trim. The floor is covered

Interior of the Baker Coach Body Looking Toward the Rear

with linoleum. When specified, the bodies can be built with the Baker patented luggage loft. The rear doors are ample in width to permit the handling of trunks and light freight.

Federal Six Two-Ton Truck

THE six-cylinder engine of the two-ton truck recently brought out by the Federal Motor Truck Company, Detroit, Mich., has a bore and stroke of 3¼ in. by 4⅝ in. and develops 62 hp. at 2,700 r.p.m. The crankshaft has seven main bearings, 2⅜ in. in diameter, giving a total main bearing length of 10 3/32 in. Each main bearing is held in a heavily ribbed bulkhead which

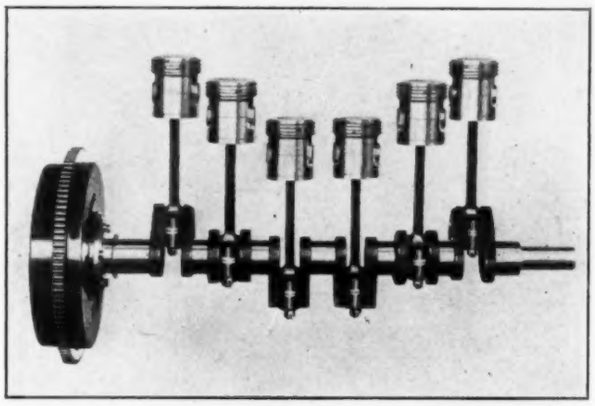


The Federal Two-Ton Truck Is Powered by a Six-Cylinder, 62-hp. Motor

runs from one side wall of the crankcase to the other. The pistons and connecting rods are balanced with each other within ½ oz. and the rods are given an end-to-end balance. The crankshaft and the fly-wheel are balanced both statically and dynamically. The pressure system of lubrication is used in the motor.

The motor is accessible for repairs. The valve covers are large and easily removed without disturbing any other parts of the motor. The tappets and guides are removable as a unit. The oil pan is bolted to one flat surface, thus avoiding any corners for oil leaks and when the pan is removed, the connecting rods are accessible. The fan and water pump units are removable from the front end by loosening four nuts. The generator is driven by a special spring drive which eliminates noise and is mounted on a support casting which also carries the distributor and allows either unit to be removed without affecting the other.

The four-speed transmission is mounted amidship with a three-point suspension between two pressed-steel frame cross members. The clutch is of the single disc type



The 2⅜-in. Diameter Crankshaft Has Seven Main Bearings

with asbestos facings, the pressure being supplied by one large spring. Lubrication is fed under pressure through the splined shaft.

The frame is 6 in. deep, of ¼-in. pressed steel channel and is rigidly re-inforced with seven large cross members. The front horns which form the shackles for the front springs are malleable iron brackets, riveted to the side rails. The truck can be furnished either with a bevel-gear or worm-drive rear axle.

Buses at the "Fair of the Iron Horse"—The Last Spectacle of the Pageant Was the Appearance of a B. & O. Trainside Coach with the Capitol Limited—Showing New York Terminal Service

Bus Maintenance and Design*

Unusual methods of large electric railway operator described—Improvements in construction proposed

By Pierre V. C. See

Superintendent of Equipment, Northern Ohio Power & Light Company, Akron, Ohio

WE have a total of 215 buses. We either operate or have operated practically every make of bus. We run three interurban bus lines between Akron and Cleveland, maintaining a 30-minute schedule. We also have interurban buses between Akron and Canton, Canton and Wooster, besides a very large chartered bus business. We operate city buses in Akron, Canton and Dover.

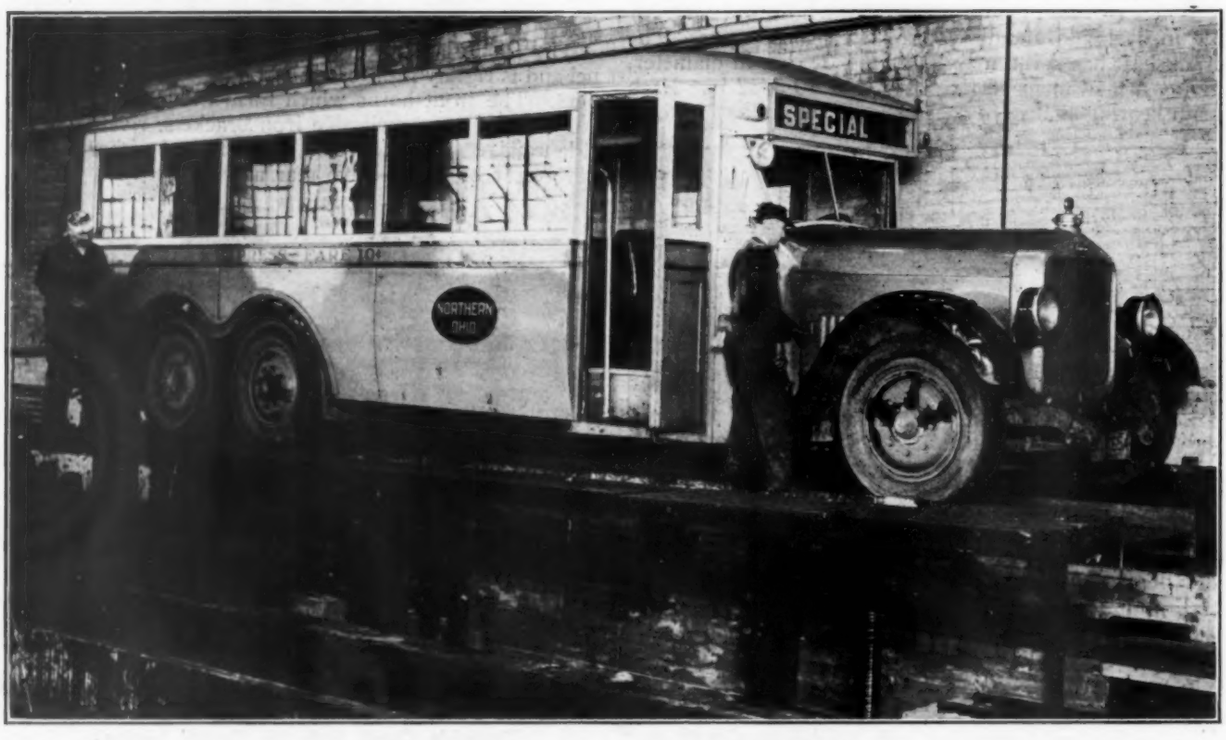
Equipment for Washing Coaches

Our company is primarily an electric railway organization, so when we started to operate buses we naturally felt that the inspection and maintenance methods that had been used over the country on electric cars, and had produced such wonderful "pull-in" and cost records, could be adapted to buses. The steam roads have their round house and their back shop. The electric roads have their inspection and repair shops. Our bus maintaining department has its garages and its heavy overhaul department.

In our garages we do inspection and light repair work. Our night force is kept as small as possible. This force takes care of the drivers' defect reports, fills the gasoline tanks, checks up the oil level in the engine, and runs the bus through the washing and rinsing sprays. The bus is then spotted so it will be ready to go out on the proper run in the morning.

Our day inspection force inspects the buses every 2,500 miles. This inspection is very thorough and comprehensive, looking over and testing every part of the bus. This force also takes care of light repair work

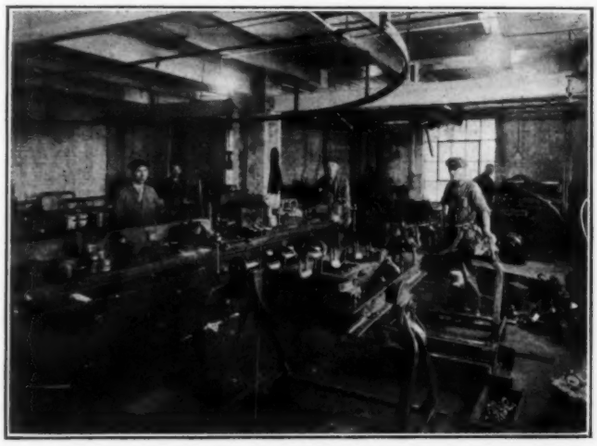
* From a paper presented before the Factory Service Managers Forum of the National Automobile Chamber of Commerce, at Cleveland, Ohio, June 14.



Four-Screw Electrically Operated Bus Hoist

such as minor carpenter work, and changing of differentials and transmissions.

In our Canton and Dover inspection barns, which are located 25 and 50 miles respectively from Kenmore, we find it cheaper to change engines than to bring the buses to Kenmore. We have a supply car which carries the



Motor Assembly Department

Two Dismantled Motors in Foreground, Two Grinding Machines in Background

complete engine to these points. In fact, we always keep an extra engine in Canton.

Buses operating on base run schedules make in the neighborhood of 225 miles per day, and we find it necessary to have a service truck meet these buses at the ends of the lines and check up the engine oil, and in winter put four to five gallons of gasoline in the buses, look over the brakes and make any minor adjustments that the drivers may think is necessary. If this is not done we find that the number of road calls and interruptions to service more than offset the saving that would be made if the service truck were not sent out.

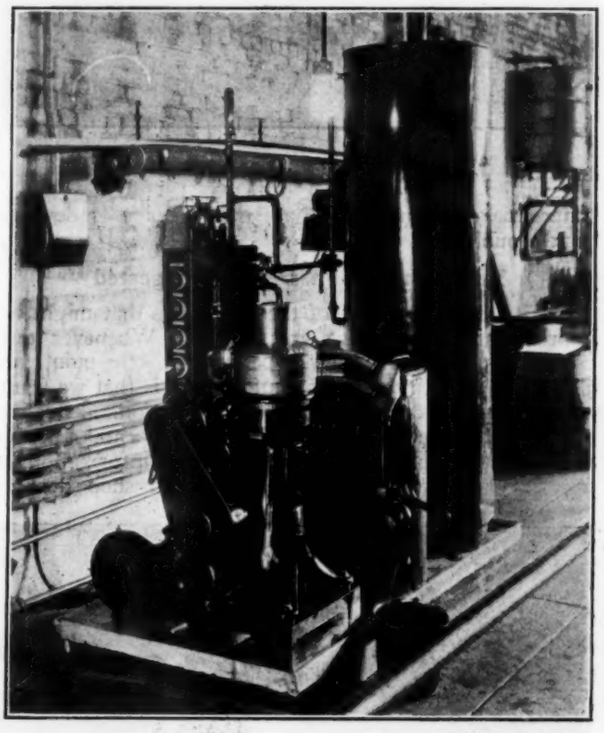
Car Shop Facilities Adopted

In the re-arranging and adjustment that has been necessary to form a unified transportation system composed of cars and buses, it has been necessary to adjust our shop facilities so as to maintain the bus equipment in connection with the cars. It has been found that some extra machinery, such as internal and external grinders, had to be added, but this machinery gave extra facilities for the car work.

Most of the car equipment machinery could be used to good advantage on the bus maintenance. The work is carried on in practically all the departments of the shop. For instance, the carpenter work is done in the carpenter shop by the regular car carpenters, the men working interchangeably on both types of equipment, while the saws, moulders, and mortising machines work out equally well on both types of equipment. The same is true of the painters and the paint shop, and the machinists in the machine shop. The armature room takes care of starters, generators and regulators. Our upholstering, sheet metal, blacksmith, store room, and clerical force all serve both departments. The only men who are strictly bus specialists are the engine, differential, and transmission builders, and the men who remove and install these units in the buses.

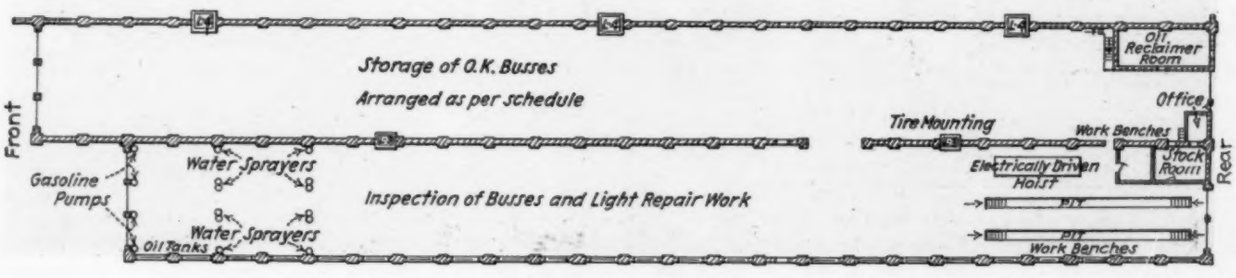
The overhauling of the buses is not done on any predetermined mileage. The bus is brought in for carpenter work and painting once a year. The engine is run until it is condemned by the inspection department for one of the following reasons: failing to deliver sufficient power, becoming noisy, giving off excessive gas fumes, or when the records show that the gas or oil consumption is excessively high.

I might say that checking up the oil and gas sheets



Oil Reclamation Plant

develop very interesting figures. For instance, the same make of bus may vary in gasoline consumption from 2½ to 5 miles per gallon of gasoline. A variation of this amount will result in a difference of cost of operation of $72 per month per bus. Therefore, it is clear that an engine in this condition is not economical to run. Of

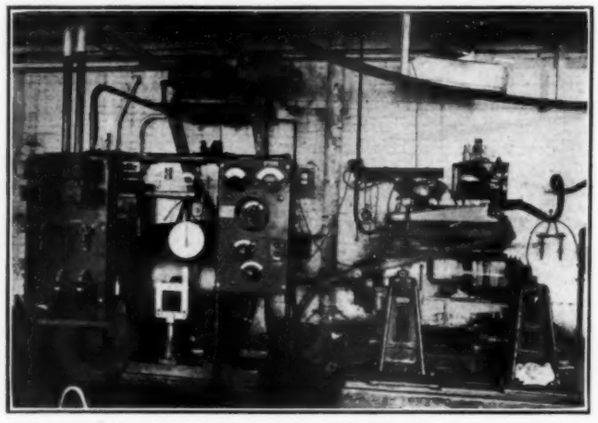


Floor Plan—Kenmore Garage

course, this variation may often be due to bad valves, carburetors with improper jets, or out of adjustment or even a leaky gasoline tank.

Under this system of overhauling, our engines are coming in on an average of between 40,000 and 50,000 miles, although, of course, a great many engines are running from 75,000 to 100,000 miles. Transmissions and differentials are run until they become noisy or develop some trouble.

Oil Testing Laboratory



Testing Plant for Motors

Improvements in Design Suggested

I will enumerate some of the conditions that might be improved in bus service and design. Whenever our company purchases a new type of bus, one point we always make with the bus manufacturers is that we want complete and accurate catalogue information. I realize that the expense of getting out elaborate catalogues is very great, but on the other hand this information is necessary if the purchasing, stores, and shop departments are to function properly and keep the buses up to standard. Multigraphed or printed circulars are practically useless if not properly supported by photographs or drawings that show the individual pieces.

This condition has often been so bad with us that we have occasionally had to order parts from the catalogue of another company and state that the piece desired was the same, only for their bus. Sometimes it has been necessary to send a sample removed from the bus. This is very unsatisfactory, as the piece nearly always is lost before it has served its purpose.

There is nothing more important in bus operation than being able to stop at all times regardless of load or grade conditions. Yet there is no part of the bus that gives us more trouble than the braking apparatus. It would appear as though sufficient engineering had not been applied to this phase of bus service. On the earlier types of buses the braking areas were too small, causing the brake drums to score and the linings to wear out.

Motor Repair Department

We have in some cases enlarged the surfaces, have secured much harder brake drums, and have been able to use harder linings. The brake cams were often designed without sufficient lift, and very few of the cams gave a constant pressure throughout the stroke, particularly after the brake lining wears. The angle of the brake levers themselves was often so calculated that when the buses were loaded, or the linings were worn, the brake levers moved past center, giving very poor brakes. Some of the later types of buses have serrated shafts that permit the proper adjustment of the lever.

Some of the manufacturers have delivered buses to us advising that they had good service brakes and parking brakes. We have always maintained that we did not care to park the buses, but wish to have an emergency brake that would stop the bus in case of failure of the service brake. We, of course, will not operate a bus unless it has two good reliable brakes.

Gas Tank Installation Important

The proper installation of the gas tank on the bus is one of the most important features. To put 50 gal. of

Repairs to Differentials and Transmissions

gas into each bus as it enters the garage is quite a problem if the connections are not properly designed for the tank. Further, if these connections are not properly made, a great deal of gas is lost in transit in going around curves.

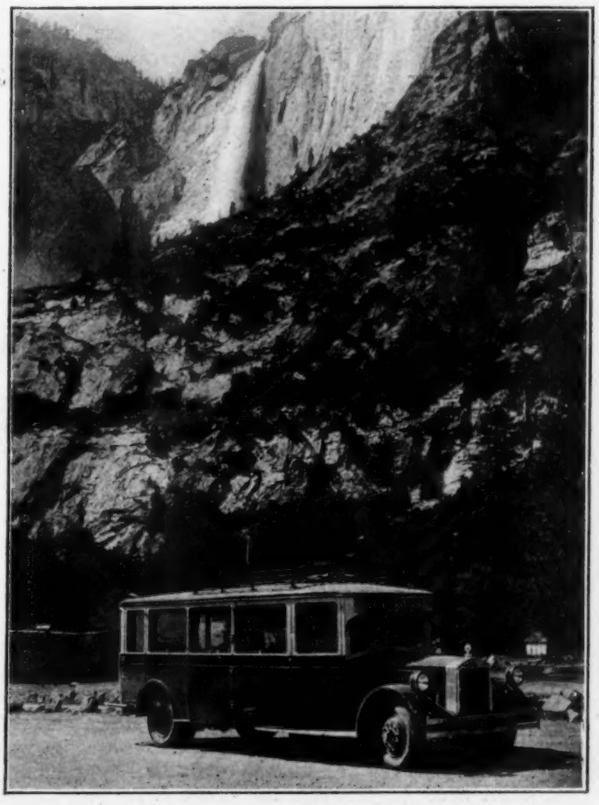
I have repeatedly visited the engine plants of practically every bus manufacturing company in the country. They always stress to me the fine balancing methods and accuracy of engine work. This is always impressive to me, but the point always enters my mind that the first building of the engine will only take care of it for about one-fifth of the total life of the engine; in other words we must recondition that engine four times again during its assumed 200,000 miles of life.

I therefore feel that when they are explaining to me how fine the engine is at first, they should also be explaining exactly what steps will be necessary to recondition the engine so that when it leaves my overhauling shop, it will be in just as good condition as when it originally left the factory. I realize that this is a somewhat different position from what is necessary in the average touring car practice. I recently had occasion to take down an engine, and found that although we had purchased the bus with a new engine it had already been bored twenty-five thousandths over-size. Taking it up with the manufacturer, we learned that in touring car practice, over size engines were turned out and no objection came from the purchaser. This is undoubtedly true as there are few touring cars that have their engines bored more than once, while it is our practice to try to rebore the engine four times in steps of fifteen thousandths, making a total of sixty thousandths oversize. Therefore, this engine block, as far as we were concerned, was half used up.

Where the engine is to be used in bus work, more thought should be given as to how the engine can be removed from the bus and replaced. We have some types of buses which can be brought in after the morning service, the engine removed, another engine replaced and the bus put back in the afternoon service, while we have other buses that require nearly two days' time to perform the same operation. I am hoping that in the near future buses can be designed so that the engine may be changed within a couple of hours. Of course the dream of a bus operator is that some day he may be able to interchange engines of different makes.

We have, of course, in many instances substituted other engines for the engine originally put in the bus, but we find that such changes involve considerable work; but if the standardization can be carried on further, some of this work may be eliminated.

One of the greatest services that could be rendered to the bus operator would be to draft an oil specification that would definitely specify the lubricating oil. The government has supplied us with a very definite gasoline specification that enables us to buy in the open market, and be sure of getting the quality we desire, but when we purchase lubricating oil in carloads under specifications, we receive bids ranging from 16 cents to 50 cents on oils which will meet our specifications.



An A. C. F. Bus in the Yosemite Valley—Falls in Background

Fourteen Buses Placed in Service in Oregon by the S. P.

Point Out New Trends in Bus Field

A. E. R. A. committees report on developments in vehicles, garages, operating methods and general situation

MOTOR bus operation and related matters were discussed at length at the annual convention of the American Electric Railway Association, which was held at Cleveland, Ohio, on October 3-7. Special committees of the Engineering Association reported on motor bus design and bus garage design, a committee of the Transportation and Traffic Association reported on bus operation, committees representing the Claims Association referred to highway accidents in their reports, and a committee of the Accountants' Association discussed uniform accounting practices for bus companies and railways. In addition to these, a committee representing the American Association as a whole rendered a report on the trend of motor bus activities, based on information obtained from a questionnaire designed to cover the experience and opinion of electric railway operators.

Report on Bus Operation

The Committee on Bus Operation discussed in its report the general economics of bus operation; the types and sizes of equipment; fares and fare collection, and operating rules. The committee was able to find little specific data as to estimated savings from the substitution of bus lines for street car lines. About 80 per cent of the companies replying to its questionnaire were quite certain that their bus operations were justified, but apparently few, if any, of them had studied the facts sufficiently to place an approximate value on the use of the bus.

The committee concluded that electric railway companies have a surprising lack of knowledge of the economics of transportation, and it urged the need of a more thorough study of the transportation business as a whole. It pointed out that the bus must not be considered as separate from the general transportation system, but merely as a new tool to be applied to the work of a transportation company.

With respect to the sizes and types of equipment, the committee stated that the method of determining the capacity or size of the bus to be installed on a route was universally by survey or estimate of traffic requirements. One point brought out was that concerning the rather low traffic density prevailing on many routes. On several interburban operations the maximum number of passengers per bus mile carried was 12, the minimum, 0.21, and the average for 11 companies operating such service 0.268.

With respect to fares, the committee reported that a successful fare structure can be devised only when proper consideration has been given to all factors affecting the use of the service and the cost of operation. In addition to special local considerations, which are always present in any case, the following points must be studied: Density of traffic, riding habits, diversity of traffic, type of service and equipment, competition, company and public policy, cost of operation, length of route, and taxation. The committee found that 26 of the 52 companies answering its questionnaire have higher fares for bus service than for street car service. Fifteen of the remaining 26, which use a similar fare for both, charge higher rates for certain bus service, leaving only 11 of the 52 operating bus and rail service at a universal fare. It also found that an overwhelming proportion of the industry believes that bus fares should not be the same as rail fares, but should be higher. There was general agreement that bus operations should be self-supporting, and should add no burden to the railway lines.

The committee, in its discussion of operating rules, presented a comprehensive set of rules and instructions for city service, which it presented as an appendix to its report.

Report on Motor Coach Design

The committee on motor coach design reported that there is a movement on the part of several organizations, including the Society of Automotive Engineers, in the direction of adopting standard specifications for motor coaches. This movement is being participated in by state regulatory bodies. The committee pointed out the necessity of standardization in fundamental and controlling factors, such as overall length, width, rear end overhang, width of doors, location of rear and emergency doors, etc.

In its report the committee did not consider it wise to submit definite recommendations covering standard specifications for motor coaches, but suggested that the question be given further study. On the subject of maintenance methods, the committee endorsed the principle of inspection on a mileage basis as it enables maintenance to be carried out on a unit basis. As an appendix to its report it presented a schedule of periodic inspec-

tions used by a large operator of gas-electric motor buses.

Report on Bus Garage Design

A special committee of the Engineering Association reported on the effect of garage design on insurance rates, door design, bus washing facilities, and ideal layouts. With respect to garage design and fire insurance rates, the committee presented a progress report, reviewing the recommendations of the National Fire Protection Association on proposed regulations for bus garages, reported in the Motor Transport Section of May 28. The committee reported that substantial agreement has been secured on many features of these regulations, but that notable exceptions are to be found in the sections governing areas, wall openings, heating and ventilating.

The committee emphasized two points with respect to the regulations. The first was that bus operators are not in any sense compelled to follow the regulations when designing garages. The second point was that state and municipal ordinances, where such are in effect, naturally take precedence over these regulations.

In its conclusions on door design, the committee said that the width of a door depends on whether one or two or more vehicles are to be accommodated, and recommended an opening of not less than 16 ft. for one bus and 24 ft. for two buses. The height of door should be at least 11 ft.

The committee found that the best types of doors are those embodying the features of quick, easy, and economical operation, clear openings, convenience and safety, and automatic opening and closing. A mechanical operating device, such as a push button, regulating the opening and closing of doors electrically gives the greatest satisfaction and the best results. All-metal doors, while more expensive than wooden doors and more difficult to repair when damaged, give better satsfaction and results when properly installed.

Trend of Bus Transportation

The report of the Committee on Motor Vehicle Information, on account of its general interest and significance, is reproduced below almost in its entirety.

It has been the purpose of the Committee on Motor Vehicle Information to determine and report the trend of motor bus operations as affecting the electric railway industry. To this end the committee prepared a list of questions designed to cover the experience and opinion of electric railway operators in this respect. The circulation of this questionnaire was limited largely to the members of the committee and only such others as seemed essential to cover the entire country adequately.

As our inquiries were concerned largely with matters of opinion rather than concretely ascertainable facts, it is not surprising to find considerable difference in the views expressed in reply. After due allowance for special local conditions it is the judgment of your committee that the responses express sufficient uniformity of opinion to justify the following deductions based on this information. It should be borne in mind, however, that the following is a summary of the trend of motor bus activities as expressed by these answers, which is not necessarily subscribed to by the committee. With this introduction we proceed to discuss the results of our questionnaire.

Question—Will the electric railways in your section purchase and operate appreciably more buses in 1927 *than in* 1926?

As a broad generality the trend still appears to favor the operation of appreciably more buses by electric railways this year. From the number which reply in the negative, however, it seems more accurate to conclude that a substantial part of the electric railways have now reached the limit to which they intend to expand their bus operations, while a larger number, who perhaps have undertaken bus operations more recently, still contemplate substantial increases in that form of service. We anticipate, therefore, some further expansion in the operation of buses by our industry for a while to come but a comparatively early arrival at a point of approximate saturation. Such a condition appears to prevail already throughout the northeast except for New York and its metropolitan area.

Question—Will these buses be used to supplant electric cars or to furnish additional transportation service?

A marked uniformity of opinion is expressed in the responses to this query. New buses to be operated this year will function largely as feeders, in cross-town service, and generally supplementary to the existing railway service of the electric railways concerned. Only in small cities does there appear to be any intention of supplanting the street cars with buses. One reply especially emphasized an anomalous situation. In this case the street railway company is abandoning one-half mile of track and substituting bus service because the track requires renewal and the city insists on burdening the company with the repaving cost.

Opinion Divided on Trend of Independent Operations

Question—Is the number of buses operated by other than electric railways increasing or decreasing?

Opinion is sharply divided on the trend of independent operations. One group reports increased independent operations while nearly an equal number find the situation stationary or decreasing. Where increases are noted they apply largely to interurban operations and not always in competition with electric railways. We incline to the conclusion that bus competition has been substantially checked in city operations while our industry has made less progress in checking the increase in interurban and, more particularly, interstate competition. Reports from the western and north central sections are the least encouraging.

Question—Are the buses now being operated by the railways end by others making a fair return on the investment?

It is the consensus of opinion that bus operations are not yielding a fair return on the investment. The comments elicited by this question are particularly interesting.

Two observers incline to the belief that urban operations on a five-cent fare are almost uniformly unprofitable; that at least eight cents and more probably ten cents is necessary to show a profit. Another respondent finds railway operation of buses unprofitable but independent interurban service making a good return—a condition which he attributes to the use of the bus by the railways in developing new territory. In two replies the point is made that bus operation, although unprofitable, is reducing railway losses. Insofar as a differentiation can be made, interurban bus service seems to be generally more remunerative than city bus operations.

Question—What is the trend of bus design in your section—toward larger or smaller buses?

Apparently many operators have already standardized on bus sizes which in their opinion best fit the local traffic requirements. In fact, two replies particularly note that their policy as to size of buses is governed by the volume and duration of the peak load in relation to the total riding. Our replies indicate that 21 to 29-passenger buses are the average in city service, with larger buses

on interurban routes. Where any trend is noted it is almost uniformly toward larger vehicles.

Greater Luxury in Inter-City Buses

Question—Is the trend toward more luxurious buses or toward more passengers per 1,000 lb?

The replies to this question, which is virtually supplementary to the preceding one, proved very enlightening. A broad uniformity of opinion allows of two definite conclusions: First, that interurban bus design trends toward more luxurious equipment while with city buses the trend is toward lighter cars of plainer but more comfortable design; and second, that the trend is decidedly toward better buses, i.e., buses of structural stability, with six-cylinder motors and durable finish; buses designed with special consideration to reasonable life and low maintenance cost.

Question—What is the trend of the schedule speed of buses—faster or slower?

In the southern sections the responses largely reflect a trend toward faster schedule speeds. While this appears to express the general purpose, many report slower schedule speeds resulting from traffic congestion. Some apparently are endeavoring to offset the effects of traffic congestion by a more rapid acceleration, insofar as that is consistent with the comfort of passengers.

Question—Is there any change in liability insurance premiums, either higher or lower?

This inquiry elicited no wide response. Several reported the appropriation of additional funds to injuries and damages reserve for the purpose of carrying their own insurance. The majority reported no change in liability rates and none reported lower rates. From the New York metropolitan area, Ohio and Wisconsin, came reports of higher rates.

Question—What is the rate of fare tendency?

In no case is there noted any downward tendency in the rate of fare; the majority, regardless of their desires, anticipate no change but several indicate an upward tendency.

Question—When buses operated by independent operators are obsolete, or otherwise unfit for use, is the tendency in these cases to abandon the lines or buy new buses?

With approximate uniformity the responses reflect tenacity in the independent operators and ability, with the aid of time payments, to replace their equipment. One respondent observes that the independents have been able to operate buses in a lower state of repair than the public would tolerate from the established transportation company and in that way have secured exceptionally long life from their equipment. Two replies note that, where the independent has been operating in competition with an electric line, there is a tendency to sell the route to the railway company when the independent buses are "just about ready for the scrap heap," in preference to replacing the buses.

Increase in Freight Haulage by Trucks

Question—What is the tendency toward freight haulage by truck in your territory?

While some replies indicate a comparatively small increase in freight haulage by trucks, nearly all agree that an increase, either large or small, is taking place; and none report a decrease. It is particularly interesting to note further that none of our electric railway correspondents complain of truck operations in competition with their own freight service. On the contrary two imply that they, the electric railway operators, are the competitors entering the field in competition with established trucking enterprises. In another case it is reported that several attempts had been made by independent operators to establish trucking service but these had been restrained by the state commission.

Question—To what extent have unregulated interstate bus lines been established, and what is the tendency towards an increase or decrease in this kind of operation?

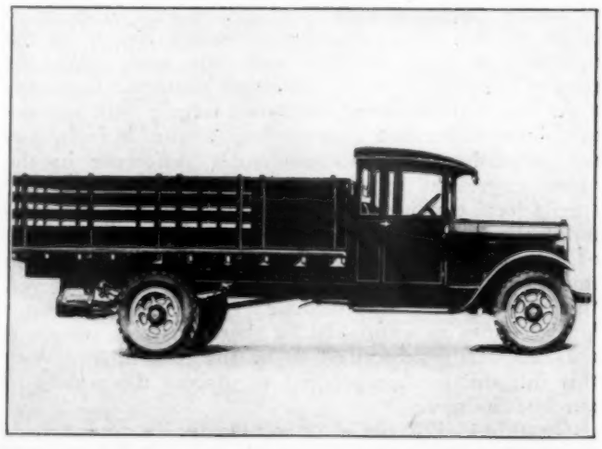
Some observers located centrally in their respective states note little if any interstate bus operations, but the majority report a small to large interstate bus business—mostly increasing. In one case the cities have made some local effort to restrict operations, and the state of Arkansas has passed legislation for that purpose. Apparently in New England such operations are on the decline but not generally in other sections.

Question—What other indications do you see in your territory that have bearing on the tendency of future bus operations?

So far as such a leading question might be expected to result in any uniformity of reply, it may be said that several look for increased bus operations. One, however, states that his territory is now so well served with buses that he can see no room for any increase. One reply notes that the bus outlook is "good," while others from Wisconsin and Texas indicate the necessity of state regulation before bus operations can approach stability. Another company operating buses in several states, where we must assume that more satisfactory regulation prevails, finds that interurban bus operations are reaching a stage of permancy wherever the density of population affords adequate traffic but are being abandoned where that condition does not exist. Among the remaining comments we find the expectation that bus operation in the future will tend to become concentrated largely under the management of the railways and the anticipation that the continued increase in the use of the private automobile will have the greatest bearing upon future bus operations.

Six Cylinder Trucks With Four Wheel Brakes

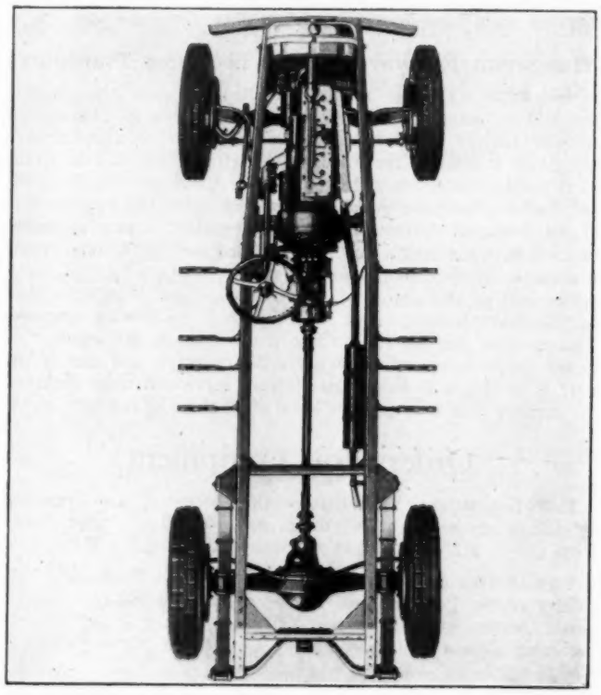
GRAHAM BROTHERS, the truck division of Dodge Brothers, Inc., Detroit, Mich., has placed on the market a new line of trucks, the features of which are a redesigned six cylinder engine and a two-ton chassis available in three types. A four forward speed transmission in the two-ton chassis assures surplus pulling ability for emergencies and makes possible moderate



Six Cylinder Two-Ton Truck with a Stake Body

engine speed for fast, long runs. The recently introduced new four cylinder engine in the lighter capacity models also has the advantage of moderate speed in fast service. The three features of the six cylinder truck are the engine, a four-speed heavy duty transmission and four-wheel hydraulic brakes.

The design of the six cylinder engine includes a 7-bearing crankshaft that weighs 69 lbs. and is machined all over. The connecting rods of chrome-vanadium steel and pistons of light alloy give the desired strength. Modifications in the manifolding, elimination of the thermostatic control and the intake heat regulator controlled from the driver's seat, which are used in the Dodge Brothers six cylinder passenger coaches, together with the use of a special carburetor jet and a special



Chassis of the Graham Brothers Two-Ton Truck

truck type fan, have been the changes necessary to adapt the coach engine to truck service.

The first speed ratio is 6½ to 1, resulting in approximately 60 per cent increase in pulling ability as compared with the first gear position of the three-speed transmission formerly used on the two-ton models.

Lockheed hydraulic four-wheel internal expanding brakes built for heavy service provide quick and positive braking. These brakes are automatically equalized, largely eliminating the necessity of making even the simple mechanical adjustment provided for each individual brake. An automatic supply tank is directly incorporated into the unit containing the master cylinder so that the system is kept full at all times.

In addition to the hydraulic brakes, the hand lever operates a propeller shaft brake so that a mechanical brake is provided for use when the truck is parked.

Another feature of the six-cylinder trucks is that they can be had with three axle gear ratios which are optional with the purchaser. The axle gear ratio represents the number of revolutions of the engine crankshaft corresponding to one revolution of the rear wheels in high gear, and the three ratios are 5.1 to 1, 5.667 to 1 and 6.375 to 1, the first giving the fastest vehicle and the last the slowest for the same engine speed.

Motor Transport News

THE MOTOR TRANSPORTATION COMPANY, bus subsidiary of the Seaboard Air Line, has begun the operation of buses between Wildwood, Fla., and Orlando.

THE ALTON TRANSPORTATION COMPANY, bus operating subsidiary of the Chicago & Alton, plans to supplement its passenger service between St. Louis, Mo., and Kansas City by the operation of a bus line on State Highway No. 40. Plans call for the operation of six buses in this service. Application to the city of St. Louis for a permit to use certain streets for the bus line has been made.

THE RIO GRANDE MOTOR WAY, INC., the bus operating subsidiary of the Denver & Rio Grande Western, has applied to the Colorado Public Utilities Commission for a certificate to operate a motor bus line between Welsenburg, Colo., and Alamosa via La Veta, Ft. Garland and Blanca. The railway proposes to use buses on this line to supplement rather than replace the rail service.

SLEEPING CAR MOTOR BUSES will be operated between Chicago and Detroit, Mich., if the plans of the Detroit Motor Bus Company, which has filed application for approval of its incorporation with the Michigan Public Utilities Commission, are carried out. In its application the company states that it proposes to operate six sleeping-car buses, and four 18-passenger, parlor type buses, equipped with observation compartments and revolving chairs and offering dining car service.

THE BOSTON & MAINE on October 7 inaugurated a new motor coach route between Cambridge, Mass., and Fitchburg, approximately 45 miles. The buses will make local stops at intervening stations and at Ayer and Concord will connect with through trains, in conformance with the company's policy of co-ordinating its highway service with its train service.

THE INCREASING USE of automobiles in place of railway facilities in Egypt is being made the subject of a special study on the part of the Ministry of Communications of the Egyptian government according to the Department of Commerce. The Railway Administration is preparing a comparative statement of its rates in effect before and since the war. It is understood that in the event the investigation shows that the competition of automobiles is making inroads into the traffic of the railroads, an immediate reduction in rates will be asked.

F. J. Scarr Gives Highway Course at Columbia

F. J. Scarr, of the Scarr Transportation Service, New York, formerly supervisor of motor service of the Pennsylvania, is giving a course in Commercial Highway Transportation during the present fall session at Columbia University. The course is described by the University in its announcement as "primarily economic in character. It deals with the relation of common carrier transportation over the highways to other means of transportation. The present and probable future participation of the motor truck and bus in common carrier transportation, and the trends in the ownership of each will be studied and the social interest in the outcome discussed."

The following outline indicates the subject matter which is being covered:

I. Relation of Commercial Highway Transportation to other means of transportation.
II. Field of the Motor Truck:
  1. Intra-terminal trucking, including store-door delivery.
  2. Inter-city trucking.
  3. Economic characteristics of truck transportation.
  4. Container service.
  5. Tractor-trailer operation.
  6. Municipal traffic control and its relation to efficient trucking.
  7. Railroad use of trucks, present and potential.
  8. Trucking rates and their basis.
  9. Operating costs.
  10. Economic field of the motor truck.
III. Field of the Motor Coach.
  1. Present use by independent operators, traction lines and railroads in common carrier service and for sightseeing, school and other private carrier service.
  2. Economic factors, such as operating cost and convenience, which determine degree of participation in passenger carriage.
  3. Future field of the motor coach.
IV. General evaluation of the fields of the different types of transportation and discussion of the trends in each.
  1. Theory of co-ordinated transportation.

THE FIRST BUS of the new fleet that the Southern Pacific has placed in operation in the state of Oregon was christened with appropriate ceremonies at Portland, Ore., on September 19, the day before it went into regular service between Portland and Corvallis. The mayor of Portland and T. B. Wilson, vice-president and manager of the Southern Pacific Motor Transport Company, participated in the ceremonies.

Missouri Commission to Prevent Bus Rate Wars

No rate wars between motor bus companies operating on the Missouri highways will be tolerated by the Missouri Public Service Commission which assumed jurisdiction over the bus lines on July 3. This declaration was made by the commission on September 20 in issuing an order granting to the Purple Swan Safety Coach Lines, a permit to operate buses between St. Louis, Mo., and Kansas City. Evidence at the hearing before the commission on this application showed that the Purple Swan Company and competing bus lines had engaged in rate fights in the past, and, according to the commission, at times had cut their fares to a point where it was impossible to operate at such rates for more than a few days.

"The applicant and other motor carriers have been indulging in practices that cannot be tolerated by this commission," the order said. "All patrons are entitled to the same rates, and the commission will expect the applicant and all other motor operators within the state to refrain from competitive rate-cutting, and will expect them to charge only the rates of fare allowed and authorized by the commission."

The order of the commission granting the permit to the Purple Swan Company was made in spite of the protests filed by the steam railways operating between St. Louis and Kansas City. Up to the present time about 80 motor carriers have made application for state permits under the new Missouri regulatory law. The commission has conducted hearings on 40 applications and has granted certificates in 9 cases.

New D. & R. G. W. Line

The Denver & Rio Grande Western, on October 15, began the operation of motor buses between Delta, Colo., and Somerset, a distance of approximately 50 miles, in replacement of steam passenger train service. The operation of the motor buses in place of trains will continue at least until April next year, passenger traffic on this line being light during the winter season. In its order approving the substitution, the Colorado Public Utilities Commission stipulated that steam trains must be operated this winter in any case when snow prevents the operation of the buses.

Buses and Trucks Under Regulation in Alabama

Motor buses and trucks operating over regular routes in the state of Alabama were placed under the jurisdiction of the Alabama Public Service Commission by an act of the state legislature which became effective on August 23. The commission is given the authority to supervise and regulate such motor carriers; to fix rates, fares, charges, classifications, rules and regulations of such carriers; to regulate and supervise their accounts, service and safety of operations; to require the filing of periodical and other reports; and to supervise and regulate them in all matters affecting the relationship between the motor carriers and the traveling and shipping public.

The law provides that certificates permitting their operation must be secured by all motor carriers operating over fixed routes. The commission may grant such certificates to bus and truck lines operating on January 1, 1927, upon a proper showing of beneficial and adequate service and rates. The motor carriers are required to file bonds in an amount to be fixed by the commission. Buses must pay a fee of 10 dollars per vehicle plus an additional fee of 40 cents per passenger capacity for each additional seat over 8. Trucks must pay fee of 10 dollars per vehicle and an additional fee of one dollar for each additional rated ton capacity over three tons. The law also provides measures for the enforcement of the commission's orders and penalties for failure to comply with them.

Plan Airplane Service Across Grand Canyon

The operation of a sight seeing airplane service across the Grand Canyon in Arizona as well as in other parts of the west is proposed by the Scenic Airways, Inc., of which J. Parker Van Zandt, a former special government adviser on commercial aviation, is president. Surveys throughout the scenic portions of the west are now being made by airplane. Officers of the Union Pacific and the Atchison, Topeka & Santa Fe are said to be accompanying the officers of the Scenic Airways, Inc., on these surveys.

According to the plans of the company, the first operations will be in the vicinity of the Grand Canyon connecting the Union Pacific terminus at Cedar City, Utah, north of the Grand Canyon, with the Santa Fe terminus on the south side. Since the Union Pacific plans to operate buses from Cedar City to its new hotel at the north rim of the canyon next summer, it is expected that the airplanes will also make stops at this point. The only means of crossing the Grand Canyon at the present time is by horse back, the trip requiring two days. The airplane will make the crossing in forty minutes.

The Scenic Airways, Inc., plans to use all metal airplanes, carrying eight passengers and powered by three motors.

Hungarian Railways Engage in Motor Transport

Hungarian state and privately owned railways are entering the field of automotive transportation, according to Commercial Attaché Grover at Vienna. In an agreement reached between the State Railways, the Independent Hungarian Railways, the local railways administered by the State Railways, and the various banking interests involved, together with the co-operation of the Budapest Automobile Traffic Company, a new organization has been created, which will be called the Automobile Traffic Enterprise of the Hungarian Railways (Ltd.).

One-half of the shares of this company have been subscribed by the State Railways and the other half by private interests. The company has for its purpose the systematic development of motor traffic in co-ordination with the railways, and aim at the start to establish passenger and freight service in those parts of the country which at present have no direct railway service.

Orders for Equipment

THE NORTHLAND TRANSPORTATION COMPANY, bus operating subsidiary of the Great Northern, has ordered six motor buses from the C. H. Will Motors Company, Minneapolis, Minn.

THE DENVER & INTERURBAN TRANSPORTATION COMPANY, subsidiary of the Colorado and Southern, has ordered two type X parlor motor buses from the Yellow Truck & Coach Manufacturing Company, Chicago.

THE SOUTHERN PACIFIC MOTOR TRANSPORTATION COMPANY bus operating subsidiary of the Southern Pacific Railroad, has accepted delivery on two 29-passenger, Mack city type buses, four-cylinder motors, 225 in. w. b. These buses were sold through the Portland, Ore., branch of the Mack Company.

THE NEW YORK CENTRAL is reported to have purchased three Pierce-Arrow buses from the Pierce-Arrow Motor Car Company, Buffalo, N. Y., and two Mack buses from the International Motor Company, New York. These buses, it is said, will be used for the transportation of employees from Albany, N. Y., and Ravenna to Selkirk.

THE SOUTHERN PACIFIC MOTOR TRANSPORT COMPANY, subsidiary of the Southern Pacific, has ordered three A. C. F. model M motor buses from the American Car & Foundry Motor Company, New York, including one parlor type bus. It has also ordered 22 Yellow buses from the Yellow Truck & Coach Manufacturing Co., Chicago, including twelve type Y, 29 passenger parlor buses, three type Z, 29 passenger, city type buses and seven type X, 21 passenger, city type buses.

Motor Transport Officers

R. W. Budd has been appointed manager of operations of the Northland Transportation Company, the bus operating subsidiary of the Great Northern, with headquarters at Minneapolis, Minn.

Among the Manufacturers

Ross Schram has been appointed vice-president in charge of sales of the **Twin Coach Company**, Kent, Ohio.

Railway Age

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Clearing Freight Station Platforms

THE subject of package freight handling is being given much study by numerous individuals and associations. In this connection, the fact should not be overlooked that receivers and shippers of freight, and the cartage firms which do the hauling for many companies who have no vehicles of their own, may aid materially in keeping the platforms clear. The desultory methods adopted by some consignees hamper operations at practically every freight station in the country. This problem is assuming larger proportions as the traffic density on the streets adjacent to freight stations increases. Realizing this, the Chicago Shippers' Conference has voted to urge all shippers not having delivery and handling facilities of their own, to place standing orders with the railway agents to deliver their less-than-carload freight through some designated teaming or trucking company. This is a step in the right direction. The regional advisory boards and other bodies of shippers and receivers may well supplement the good work they are doing by devoting more attention to the delivery and receipt of less-than-carload freight.

Service Improves, Business Declines

RAILROAD passenger service is not only considerably more comfortable and more expeditious than it was a few years ago—it is also much safer. The summary of railroad accidents issued by the Interstate Commerce Commission covering the first six months of 1927 shows only two passengers killed in train accidents—an astounding record of safety in travel. We have the strange spectacle of a commodity vastly improved in every detail for which the demand shows a tendency to decrease. One may well ponder the cause, The automotive vehicle has a definite sphere in our national scheme of transportation in which it can serve where the railroad cannot. One may wonder, however, in view of the continued decline in railroad passenger business whether the private automobile is not being used occasionally beyond its economic sphere—possibly because potential railroad passengers do not realize how great an improvement the railroads have made in their service. Intensive sales effort by the manufacturers of other commodities, depleting the family purse of money otherwise available for travel, has likewise doubtless had its effect. Sales efforts by railroads for their passenger service so far has largely been directed toward competition among themselves. Such effort is quite proper, yet is there not also urgent need for sales activity for railroad transportation generally? In order that the A. B. & C. Railroad may sell a ticket it is not only necessary for it to convince the passenger that he should prefer the A. B. & C. to other railroads, but also that he should spend his money for a railroad ticket rather than for a trip in the family automobile, a new radio, or seats for the theatre. The excellence of present day railroad service—its comfort, its speed, its safety—makes a strong foundation for such a sales campaign.

The Positive Meet System

THERE has long been considerable curiosity on the part of other railways as to how the New York, New Haven & Hartford operates its positive meet system of clearing trains. This was stimulated by an address on the subject delivered by the general manager of the road at the convention of the American Association of Railroad Superintendents last year. Since that time, no less than five railways have sent representatives to the New Haven to study the system, while voluminous correspondence has developed with several other lines. This correspondence brings out very clearly that there is much misunderstanding as to what the positive meet method really is, and how it works. With this in mind, a description of the method is published elsewhere in this issue together with the objections most frequently advanced against it, and the replies of the New Haven's officers to these objections. Whether or not the positive meet method can be successfully applied on other railways is, of course, a question that can only be answered after several other railways try it, but it is a success on the New Haven. The system meets with the unanimous approval of those who use it, most of whom were brought up under the superiority by direction method. The positive meet system is not such a revolutionary departure from the older method as the prevailing impression would seem to indicate. It is merely a development of the system now in vogue, and, on the New Haven at least, it is a logical development, since it permits the handling of trains with ease on divisions where formerly, with much lighter traffic, getting trains over the railway satisfactorily was a very difficult problem.

Effecting Savings with Purchased Power

THE electrification of auxiliary yard and terminal facilities of medium size has been justified economically on numerous railroads. The change over from steam operation and the generation of a road's own electric power requirements to the purchase of electrical power, however, is dependent largely, and in some cases entirely, upon the necessity of maintaining a high pressure boiler plant for steam requirements in the shops and roundhouses at terminals. When steam can be replaced with electric power, for other than heating, it may be found more economical to shut down the power

plant, salvage the steam-driven generators, compressors, pumps, etc., and purchase electrical energy locally for the operation of motor-driven equipment. Favorable public utility power rates, of course, are an all important factor and each power plant will have to be subjected to an individual economic study to determine the feasibility of the idea. This is a point that certain advocates of either scheme overlook and yet it is really the one that must be settled first. When proper cost studies indicate savings of 20 per cent or more on the total expenditure for electrified facilities, it would seem that the change-over should be made. One western railroad, after making such a preliminary estimate of expected savings and finding the prospects favorable to a change, authorized the conversion from steam generation to purchased power at one of its smaller yards. And actual experience during a year's operation disclosed a net power saving of $5,190 on a total capital expenditure of $32,906.

Putting Passengers in the Right Car

THE train indicator at a large passenger station should as nearly as possible tell the passenger not only the time and number of his train, but also everything he wants to know to enable him to reach the right car. In many places in Germany this purpose is carried out to an unusual degree. On the platform are indicators which show the class of train, its destination, route, time of leaving and an arrow indicating the direction in which the train will arrive at the platform. A board of large dimensions is also displayed some time before the arrival of the train, on which is set out the exact disposition of the coaches, so that passengers may know in advance exactly how the train will be made up and where the particular accommodation they require may be found. In some of our larger terminals, a somewhat similar practice prevails, but it should be more widely used than it is. A glaring example of how not to load passengers was observed recently at a large station on a hot day, when a dozen passengers, some with small children and many with heavy hand baggage, were allowed to enter an express train near the front end, only to find that to get seats they must walk back through four or five cars, a journey not completed until some time after the train had got in motion. Usually, if there are a sufficient number of employees about and they are sufficiently interested in giving good service, passengers will experience little difficulty. The advantage of mechanical means of imparting information is, however, that it is always on hand and never inattentive.

Purchases and Stores

DIVISION VI, Purchases and Stores, American Railway Association, was formed only a few years ago, but in that brief period has made really remarkable progress, as was clearly pointed out by W. G. Besler in opening the program of the "Purchases and Stores Night" of the New York Railroad Club last week. It must be remembered, however, that it was erected on the broad and substantial foundation of years of hard and painstaking work of the old Railway Storekeepers' Asosciation, which was headed up by a group of progressive men of large vision who freely gave of their best efforts to raise the standards and dignity of the stores and purchases departments. The abundant fruit which has resulted from this work must be a real satisfaction to these men. It would be interesting if the reactions of a similar audience fifteen years ago could be compared with those of the one of last week to some of the statements which were made by Messrs. Walsh and Sorenson. There was, for instance, a clearly expressed idea of the mutuality of the interests of the seller, the buyer, the custodian and the user of the materials—the thought that the interests of all must have mutually sympathetic recognition. This was reflected, in a way, in the relations between the buyer and seller, by Mr. Walsh's discussion of the buyers' market and the conclusion that it creates more problems than it removes. Mr. Sorenson's reveiw of the larger questions confronting the stores department was predicated upon the necessity of the closest co-operation and co-ordination of the supply and using departments. It is quite likely that fifteen years ago some of the users of material in the audience would have criticised specifically and forcefully the methods and practices of the purchasers and stores departments—indeed not a few heated discussions of this sort are on record in the earlier period. It is noteworthy that there was an entire absence of this at the New York Railroad Club meeting last week.

Loading Rules Not Always Observed

AT the recent annual convention of the Railway Car Department Officers' Association in Chicago considerable time was devoted to a discussion of the freight car loading rules laid down by the American Railway Association, and the ways in which these rules are not observed in some cases. From the discussion on the convention floor, it is apparent that shippers may be divided roughly into three classes: first, the great majority, both large and small, who load their materials in accordance with the A. R. A. requirements without special urge on the part of railway officers; second, many who do not load in accordance with the rules but would do so if properly approached with information regarding the necessity for and methods of correct loading; and third, a number who do not load and brace shipments in accordance with the rules, either because they consider it unnecessary or because it costs a little more and takes a little more time than their usual methods. These latter shippers, fortunately in the minority, sometimes use their business as a club to compel the acceptance of shipments braced in accordance with their own ideas on the threat of giving the cars so loaded to a competing carrier. With the whole-hearted assistance of most shippers, general loading conditions are improving, but there is need for further co-operation of shippers and carriers and above all, avoidance of the indefensible situation of one road accepting a shipment rejected by another on account of non-compliance with the loading rules. Such acceptance implies a serious break-down of the rules, for shippers who hear about it cannot consistently be asked to abide by rules which one of their number, and possibly a keen competitor, is permitted, knowingly, to violate. The A. R. A. loading rules represent years of the best thought and experience in the efficient loading of commodities in American freight cars. Many claims for loss due to rough handling are in reality due to weak and inefficient loading in disregard of these rules. If *all* railroads will make a real honest effort to have *all* shippers comply with the rules at *all* times, there can be no question of the benefits which will accrue.

Making the Railways Safe

IT is doubtful if there is anything an inhabitant of the United States can now do with more safety than ride in a passenger train, unless it is stay in bed. The safety of travel by rail is strikingly emphasized by statistics of railway accidents in the United States for the first six months of 1927, which were issued by the Interstate Commerce Commission this week. In those months only two passengers were killed while riding on trains, one of these fatalities being due to a collision and one to a derailment. There were 40 passengers killed, but 19 of them were killed while getting on or off trains, 8 by being struck by trains or cars and 11 in miscellaneous ways. The number of passengers carried during the period was 416,530,000, and the average distance they traveled was 39 miles. Therefore, on the average, only one passenger in each 208,265,000 carried was killed while riding on a train, and only one passenger in each 10,413,250 carried was killed in any way. The best record ever made in any entire year was in 1923, when the total number of passengers killed was 138, or one in each 7,216,000 carried. If the record of the entire year 1927 is as good in proportion as that of the first six months it will surpass that of 1923. For many years the managements and employees have been co-operating energetically and intelligently to increase safety of operation, and it is doubtful if any other industry in the world has made a better record in reducing accidents than our railways. The worst record ever made was in 1913, when the total number of persons of all classes killed was 10,964. The number of passengers killed in that year was 350, while in 1926 it was only 176, a reduction of 50 per cent. The number of employees killed in 1913 was 3,715, and in 1926 only 1,590, a reduction of 57 per cent. The most difficult safety problem with which the railways have had to deal within recent years has been presented at highway grade crossings, but at last there seems to be some progress being made in dealing with this problem, the number of persons killed at such crossings having shown a small reduction in the first half of this year in spite of the continued increase in the number of automobiles.

The Signalmen and the A. F. of L.

AT the recent convention of the American Federation of Labor a motion was adopted which will no doubt result in the cancellation of the A. F. of L. charter of the Brotherhood of Railroad Signalmen of America. In brief, the action requires that the signalmen's organization transfer to the International Brotherhood of Electrical Workers, or disassociate from its membership all members of the B. R. S. of A. who devote 50 per cent or more of their time to electrical work. This resolution was presented by Jas. P. Noonan of the Brotherhood of Electrical Workers, and was opposed by D. W. Helt of the signalmen's organization who pointed out that the charter granted by the A. F. of L. in 1914 contained the following paragraph regarding the jurisdiction of the Signalmen's organization: "All signalmen who are actively engaged in the construction and maintenance of mechanical and automatic block signals, locking and interlocking plants, mechanical, pneumatic, electric or otherwise, while employed in a signal department of a railroad company."

For several years the electrical workers have been endeavoring to secure jurisdiction over the signalmen, and in view of the fact that Mr. Noonan of the Brotherhood of Electrical Workers is now a member of the executive council of the A. F. of L., it would appear that he has got the upper hand and is in a position to secure the backing of the A. F. of L. in the accomplishment of his purpose.

Undoubtedly the Brotherhood of Signalmen will lose its charter in the A. F. of L. Such action need not, however, have adverse results for the signal department employees or the railroads. In fact, it may be a blessing in disguise. Affiliation with the A. F. of L. is by no means a necessity for the success of a railroad labor organization. The train service brotherhoods were never affiliated with the A. F. of L. and the clerks' organization has recently left the fold.

The Brotherhood of Railroad Signalmen now has agreements on most of the railroads of the United States and Canada. The officers of many of these railroads report that their dealings with the officers of the signalmen's organization have been, in general, satisfactory. It is considered to be conservative and because of this has received consideration from the railroad managements that has been of benefit to its members. The fact that the Brotherhood of Electrical Workers many now solicit signalmen as members has a significance which should be considered not only by signal employees but by railroad managements as well.

The interests of the Brotherhood of Electrical Workers are primarily in the building trades. If any signalman should join that organization now, it is easy to guess how long, with present members of the organization holding superior seniority rights, he would keep his job in case of a depression in the building trades. Furthermore, with considerable construction work on the railroads being done and with house-wiring electricians constructing interlocking and automatic signals, the railroads would be required to employ an inspector for each electrician to see that serious errors were not made. When building construction opened again these electricians would return to the building trades and the old railroad signalmen might get their jobs back for a while. In other words, if the electrical workers are to have jurisdiction over the signalmen, the railroad managements as well as their signalmen are bound to be in "hot water" about half of the time.

The conclusion of the matter appears to be that the members of the Brotherhood of Signalmen should stand behind their organization and the railroad managements should refuse to deal with the Brotherhood of Electrical Workers.

Government Ownership Views on the Interstate Commission

COMMISSIONER JOSEPH B. EASTMAN of the Interstate Commerce Commission has again shown he is a man of convictions and courage, and at the same time raised once more a question as to his consistency as for a member of the commision, by writing a report for the National Association of Railroad and Utilities Commissioners arguing for government ownership.

The association has a committee on public ownership and operation. Three of the members of the committee—all of them members of state commissions—Messrs. Corey, (Ore.); Higgins, (Conn.); and Ing, (Mo.); signed a report favoring private ownership and management of public utilities and railroads upon the ground that it is usually more efficient and economical, and,

therefore, more beneficial to the public, than government ownership and management. The report was presented at the convention of the association in Dallas last week. "Throughout the business world," said the majority report, "the best service is rendered when there is hope of reward, and the best commodity is produced when there is hope of profit. Where reward or profit are lacking, service and commodity depreciate in value. The rewards of public life are dubious and profits are not forthcoming by honest means."

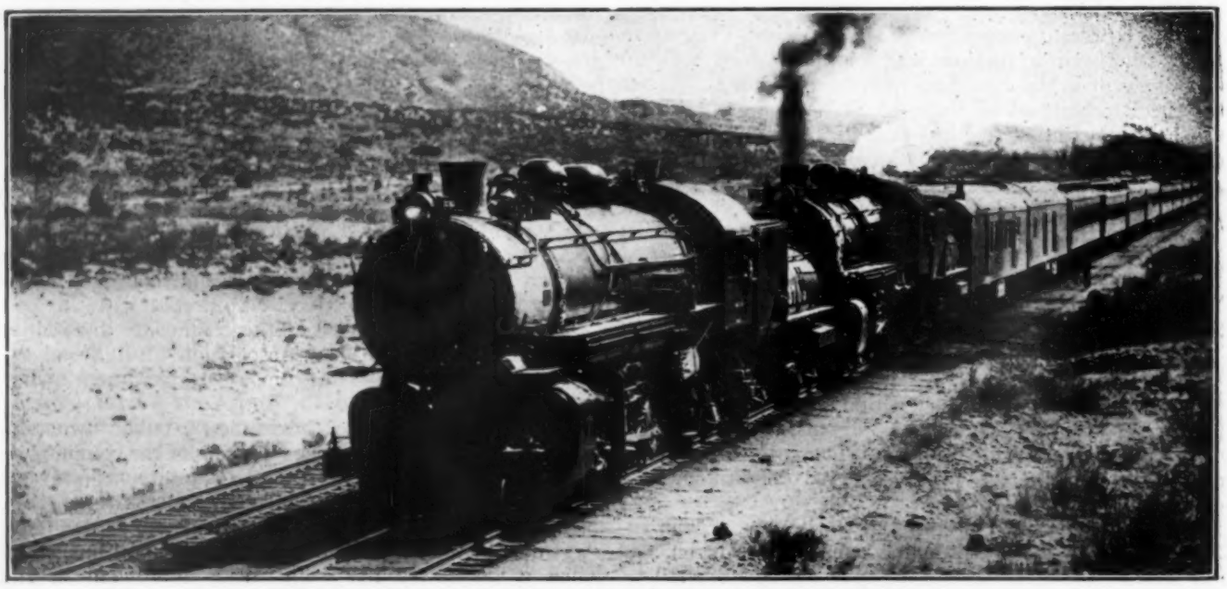
Mr. Eastman expressed himself as fundamentally in disagreement with these views. "Obviously money is the reward which the majority have in mind," he said. "Now I do not agree that money is the only or even the best incentive to good work * * * There are certain functions which clearly belong to the state and these it ought in self respect to perform itself. They ought not, in my opinion, to be degraded by conversion to the ends of private profit. * * * If we should adopt the principle that every governmental function should be performed directly by the state, and should not be farmed out to private enterprise, it is my very sincere belief that the ultimate result would be to increase respect for the government and improve the character of our public service." Basing his reasoning on this social philosophy, and declaring that railroads and public utilities perform a function of the state, he presented the familiar economic arguments in favor of government ownership of them.

Nobody will question Mr. Eastman's right as a citizen to favor government ownership. But Mr. Eastman is not merely a citizen. He is a member of a government administrative body charged with the performance of a very important public duty—that of giving effect to the federal laws regulating railways. The question of government ownership of railways was very directly presented to the nation eight years ago. The Transportation Act was passed expressly for the purpose of returning them to private operation, and of assuring opportunity for private ownership and operation to succeed.

There is, in consequence, the widest possible difference between the economic principles on which the Transportation Act is based and the social philosophy and economic principles of Mr. Eastman. The Transportation Act plainly assumes that the hope of profits and the opportunity to make them constitute an indispensable incentive to efficient and economical railway management, and its provisions are in harmony with this premise. Mr. Eastman repudiates this view. The only inference that can be drawn from what he says is that he believes private ownership of railways is, in principle and fact, an unsound policy, and that the Transportation Act is an unsound law because intended to perpetuate this unsound policy.

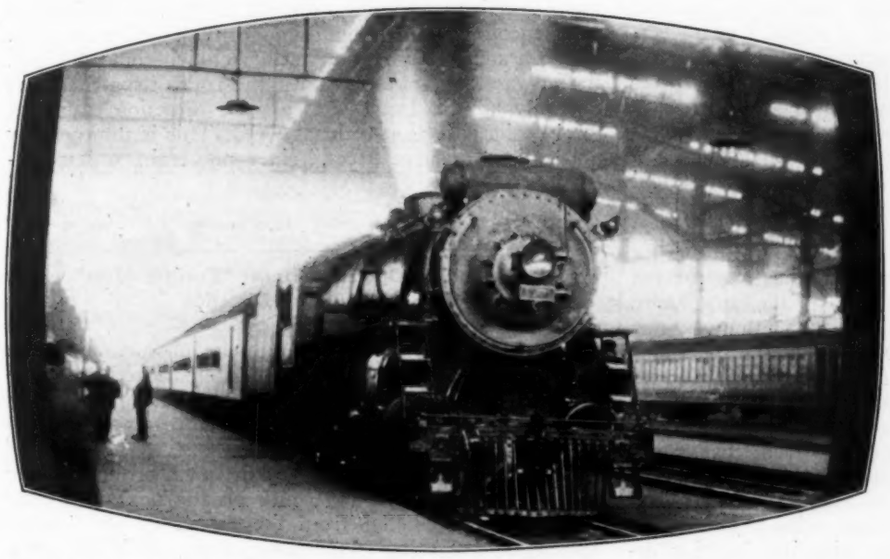
This being the case, how can Mr. Eastman strive zealously to so perform his duties as a commissioner as to help give full effect to the provisions, spirit and purposes of the Transportation Act? How can he sincerely and energetically do all he can to give full effect to a law intended to perpetuate private ownership of railways when he believes that the national welfare would be furthered by the destruction of private ownership of railway? As would be expected by any thinking person his course as a commissioner has been in accord with his government ownership views. In opinion after opinion rendered by him in important cases he has favored a policy of regulation which is wholly inconsistent with the principles of the Transportation Act and its purpose to assure the success of private management. The policy of regulation he favors would in time render a continuance of private ownership impossible and the adoption of government ownership inevitable.

If permanent government ownership and management of railways should be adopted, men sympathetic with that policy should be given the management of the railways. The policy would be pretty sure to be a failure if control of its administration were entrusted to men who were strongly opposed to it. Likewise, the administration of laws intended to maintain private ownership and insure opportunity for private management to be successfully conducted should be entrusted to men who believe that the continuance of private ownership is in the interest of the public welfare. The success of a policy of private ownership subject to government regulation cannot fail to be endangered by entrusting the authority of regulation to men who believe private ownership should be destroyed, and who, because of their regulating authority, are in the best possible position to hasten its destruction.



"Los Angeles Limited," U. P., Westbound in Cajon Pass, California

"Positive Meet" System Effects Economy



One of the N. Y., N. H. & H. Passenger Trains Arriving at South Station, Boston, Mass.

Operating method inaugurated by the New York, New Haven and Hartford attracting much interest.

FOR more than a quarter of a century the New York, New Haven & Hartford has been operating under the "Positive Meet" system, as contrasted with the "Superiority by Direction" method formerly used. Under this system, schedule meeting points are arranged for and made by the time table without the use of unnecessary train orders. In the 25 years of its operation there has been no accident that could be charged directly or indirectly to the failure of the "Positive Meet," while by means of this system, it has been conservatively estimated that a saving of over 30 per cent has been effected in dispatching costs.

This method of operation is in accordance with the footnote appearing in the American Railway Association's Standard Code of Train Rules Numbers 71 and 72, which reads as follows:

"Railroads may, if desired, modify their rules to require trains to wait indefinitely at schedule meeting points for trains of the same class, unless otherwise directed by train order."

In other words, this footnote permits the use of the "Positive Meet" in lieu of the better known "Superiority by Direction" method of scheduling trains and re-adjusting their movements through the medium of the time table.

Until recently the New Haven was the only railway in the country operating under the "Positive Meet" to any extent, although the Central of Georgia used this method on its branch line from Savannah, Ga., to Tybee Beach, 18 miles. On September 12, 1926, however, the Ulster & Delaware adopted it on its 107 mile single-track, heavy grade line through the Catskill Mountains between Kingston, N. Y., and Oneonta with seven passenger trains in each direction daily during the summer. A few months ago the New York, Ontario & Western also adopted the same system. Other railroads have also displayed considerable interest in this method of operation and this interest has been much increased since a paper on the subject was read before the American Association of Railroad Superintendents at Montreal in June, 1926, by J. A. Droege, general manager of the New Haven. Since that time much correspondence has ensued and a number of railways have sent special representatives to make a study of this feature on the New Haven.

The correspondence has developed that a great deal of misunderstanding exists as to what the "Positive Meet" really is and how it operates. The New Haven operates some 2,000 miles of lines, about 1,100 of which are single track. It is on this single track that the "Positive Meet" is used.

The passenger traffic on the New Haven's network of lines in southern New England is exceedingly heavy. The total number of revenue passengers carried in 1926 was 65,686,438, of which 2,008,532 were interline passengers, 20,233,124 local passengers and 43,444,782 commuters. The total number of revenue passengers carried one mile was 1,796,293,123, and the number of revenue passengers carried one mile per mile of road was 1,038,452. Slightly more than 1,000 passenger trains are operated each week-day.

The operation of the "Positive Meet," insofar as trains of the same class and their sections are concerned, is governed entirely by the time table and supplements issued thereto. In other words, all schedule meeting points between trains of the same class are contained in the current time table and such trains are operated without the necessity of train orders, except in cases of emergency.

Except on one division, freight trains are run as extras and their meeting points are arranged for by train order, the same under either system.

The question as to which train takes the siding at meeting points between trains of the same class is covered by an operating rule. The "Positive Meet" does not apply as between trains of different classes or between regular and extra trains, but only between trains of the same class.

Theoretically, under the "Positive Meet," trains are required to wait at schedule meeting points indefinitely for opposing trains of the same class. In actual practice, however, in the case of a break-down of one train or the other, the situation is taken care of by train order. Second class trains are required to keep clear of first class trains in exactly the same way under both systems; between themselves, the requirements at schedule meeting points are the same as for first class trains. Extras

are required to clear both first and second class trains under either system.

What Other Roads Say

One of the first statements usually made in connection with the operation of the "Positive Meet" on the New Haven is that the operations there are "different" and more "favorable" to the successful use of the method than they would be elsewhere. The physical characteristics of the New Haven are practically the same as on any of the other railways throughout the country. It has some 148 junctions at which train connections, directly or indirectly affect schedule meeting points. It also has its complex problems in switching, difficult grades and wire trouble. In fact, it was not especially designed or constructed to adopt the "Positive Meet."

Another objection frequently raised is that the system fails to function in case of wire trouble. In answering this, the New Haven points out that with the present efficiency of telegraph and telephone facilities, wire trouble does not occur once in months, although it is just as likely to occur on the New Haven as on other railroads. In the 25 years and more of operation under the "Positive Meet," wire trouble has, of course, occurred several times, but not once in that period has any serious delay to train operation arisen from that cause. It seems logical that in the case of trains failing to make their time superior direction trains should suffer at least as many times as inferior direction trains. This being true, if wire failure does occur with the inferior direction train a few minutes late, the result is a complete tie-up of both trains, which cannot happen under the "Positive Meet."

Lack of Facilities No Handicap

Another statement frequently made is that the "Positive Meet" may operate satisfactorily on a railroad where the communication facilities are good and the telegraph or telephone offices are close together, but will not work on railways where such offices are few and far between. As a matter of fact, it was this very lack of communication facilities that caused the adoption of the "Positive Meet" on the New Haven. What communication facilities existed before the adoption of the "Positive Meet" were unreliable at best, with the result that difficulties were encountered in attempting to move trains on time. When a superior direction train would become delayed, traffic was at a standstill until the train dispatcher was not only able to locate the superior direction train but the inferior direction train as well. This is unnecessary under the "Positive Meet," since one train, unless disabled, will always be found at the schedule meeting point. The "Superiority by Direction" system lacked the flexibility necessary to meet the intensive operating conditions which were becoming necessary as a result of the increasing traffic density, with runs over a network of main lines, which might be east or north on one section of the line and west and south on the next. Further complications resulted from the numerous short runs, junctions and train connections, along with the compelling demand for greater speed.

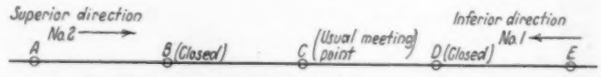


Fig. 1—Illustrating Operation Under "Positive Meet" versus "Superiority by Direction"

The usual expedients, such as time table footnotes, were resorted to without success, until finally the "Positive Meet" system was substituted. Furthermore, it was found that much schedule time was wasted due to the common practice, which still exists on many roads, of allowing the inferior direction train additional running

NORTHWARD. **SOUTH NORWALK TO DANBURY.** **NEW YORK DIVISION.**

Distance from So. Norwalk	STATIONS.	Minimum Time for Passenger Trains	250 Ex. Sun.	252 Daily	446 Sun. only	264 Sat. only	248 Sat. only	406 Ex. Sat. and Sun.	246 Sat. only	240 Ex. Sun.	256 Ex. Sat. and Sun.	408 Ex. Sat. and Sun.	410 Sat. only	448 Sun. only
			1st Class Danbury Passenger	1st Class Pittsfield Passenger	1st Class Passenger	1st Class Danbury Passenger	1st Class Pittsfield Passenger	1st Class Passenger	1st Class Danbury Passenger	1st Class Pittsfield Passenger	1st Class Danbury Passenger	1st Class Passenger	1st Class Passenger	1st Class Passenger
		Min. Sec.	A M	A M	A M	P M	P M	P M	P M	P M	P M	P M	P M	P M
0.00	South Norwalk .N	0.00	s 4.32	s 8.17	9.42	s12.42	s12.50	1.30	s 1.45	s 3.38	s 4.47	5.46	6.08	7.27
0.77	Dock		4.35	8.20	9.45	12.45	12.53	1.34	1.48	3.41	4.50	5.50	6.12	7.31
1.74	Norwalk	6.03	s 4.38	8.23	s 9.48	12.48	12.56	s 1.37	s 1.51	3.44	s 4.53	s 5.53	s 6.15	s 7.34
3.04	Fair Grounds Sid'g		4.41	8.26	9.51	12.50	12.59	1.40	1.54	3.47	4.56	5.56	6.18	7.37
3.42	Winnipauk .....D	3.04												
3.97	Norwalk Mills S'g		4.45	8.29	9.54	12.52	1.02	1.44	1.56	3.49	**4.58**	6.00	6.22	7.40
5.23	Hopkins (South Wilton)	2.46	s 4.48	8.31	f 9.57	12.54	1.04	f 1.47	s 1.58	3.51	5.01	f 6.03	f 6.25	7.42
7.63	Wilton ..... D	3.36	s 4.52	s 8.36	s10.02	s12.58	1.08	s 1.52	s 2.02	s 3.55	s 5.06	s 6.08	s 6.30	s 7.47
9.15	Cannondale .....D	2.20	s 4.56	8.39	s10.06	1.01	1.11	s 1.56	2.06	**4.00**	s 5.10	s 6.12	s 6.34	s **7.51**
12.13	Georgetown .....D	4.28	s 5.00	k 8.44	s10.11	1.05	1.16	s 2.01	s 2.10	4.05	s 5.15	s 6.17	s 6.39	s 7.56
12.99	Branchville.....N	1.17	s 5.03 5.10	s 8.47	s10.15	s 1.08	1.19	s 2.05	s 2.13	4.07	s 5.18	s 6.21	s 6.43	s 7.59
15.39	Topstone	3.57	s **5.15**	**8.53**	f10.21	1.13	1.24	s 2.10	f 2.18	4.11	5.23	f 6.26	f 6.48	f 8.04
17.55	Redding.....D	3.34	s 5-21	o 8.57	f10.26	1.18	1.29	s 2.15	s 2.22	4.15	s 5.28	s 6.31	s 6.53	s 8.09
20.57	Bethel Lower Sid'g		5-26	**9.02**	10.31	1.23	1.34	2.20	2.27	**4.19**	5.33	6.36	6.58	8.14
20.86	Bethel .....D	4.58	s 5-30	s 9.04	s10.32	s 1.24	1.35	s 2.22	s 2.29	s 4.20	s 5.35	s 6.38	s 7.00	s 8.16
23.82	Danbury (White St.) N	6.01	5-37	s 9.10	10.38	1.30	s 1.41	2.28	2.35	s 4.26	5.41	6.44	7.06	8.22
	Arrive		A M	A M	A M	P M	P M	P M	P M	P M	P M	P M	P M	P M
	Note references			K O		B			B					

B Does not carry baggage.
K (k) Train **252** will stop at Georgetown on Thursdays only.
O (o) Train **252** will stop at Redding Sundays only.
P Will not run July 3rd or Sept. 4th, 1927.

Fig. 2—A Portion of the N. Y., N. H. & H. Time Card. Positive Meeting Points Are Indicated by Heavy Figures

time between the last staton and time table meeting station as compared with other trains which have no meet between the same stations, a practice which is eliminated under the "Positive Meet."

Figure 1 shows a concrete example of how the "Positive Meet" avoids tie-ups in localities lacking in communication facilities. In this diagram, No. 2 is the superior direction train moving from A to E, No. 1, the inferior direction train, is moving from E to A. The normal meeting point is at C. No 2, the superior direction train, will be late in leaving A, while No. 1 was on time leaving E. The communication offices at B and D are closed. Under these circumstances the dispatcher issues an order to No. 2 at A and to No. 1 at C to meet at B. No. 2 receives the order at A, signs for it and proceeds to B. In the meanwhile No. 1 is delayed between E and D and, not having received the supplementary order awaiting it at C or sufficient clearance time, naturally ties-up at D awaiting the superior direction train. The result is that both trains are tied up and out of communication with the train dispatcher. This could not happen under the "Positive Meet" for the reason that No. 1 would proceed to C, the schedule meeting point, regardless of any delays, providing it had received no instructions to the contrary; arriving at C, the instruction to meet No. 2 at B would be received and No. 1 would proceed to that point, neither train being completely tied up, as under the "Superiority by Direction" method.

Another objection frequently advanced is that the "Superiority by Direction" method is easier to learn and hence more popular with the men. In May, 1914, when a new book of rules was put into effect on the New Haven a vote was taken among the locomotive engineers, practically all of whom had worked under both systems. Of the 1,710 men voting only 9 expressed a preference for the "Superiority by Direction" method.

Only One Time Table

The New Haven does not follow the practice of most roads of issuing a separate time table for each division. All of the time tables are consolidated into one book of 149 pages. Figure 2 reproduces a sample page from the current time table, showing the Danbury branch of the New York division. It will be observed that there are no supplementary footnotes giving a train run by the same crew the right into a terminal against itself, and, of course, no footnotes reversing the "Superiority by Direction" or nullifying its effect. The only footnotes are those relating to carrying baggage and stopping trains during certain days of the week at particular points. The heavy black figures indicate the "Positive Meet" points. These are also to be found on the schedules in the reverse directions. There are many single track districts on which the passenger traffic is much more dense than the one shown, but the pages covering these districts are too large for reproduction here.

Results on One Division

The New London division, 72 miles, between Groton, Conn., and Worcester, Mass., schedules both its freight and passenger trains and operates under the "Positive Meet." An analysis made, which represented a typical average month on this division, developed the fact that of a total of 1,280 trains, 360 first class and 105 second class made their schedule meets. The analysis shows that, assuming northward trains which cope with the principal ascending grades, were superior by direction, the train orders involved by the "Positive Meet" would have been increased 40 per cent under the "Superiority by Direction" system. The average number of trains each day was 20.7 and the average number of meeting points of first class trains per day was 11.8. The average number of meeting points of second class trains was 3.4. This is due largely to the fact that the "Positive Meet" eliminates entirely the necessity for issuing train orders confirming the meeting points provided for in the time table. Moreover, it happens not infrequently that both opposing trains are approximately the same number of minutes late. Here the "Positive Meet" operates automatically, since there is no concern on the part of the crews or the dispatcher, and no necessity for issuing train orders to these trains, as both of them may proceed to the schedule meeting point as provided for in the time table, exactly as if neither of them was late. This check was made on a district that is subject to all the disarrangement of schedules and train delays from various causes that are to be found elsewhere.

Advantages Claimed for the "Positive Meet"

New Haven officers do not maintain that the "Positive Meet" is a new and revolutionary method that renders the "Superiority by Direction" method obsolete. Their argument is simply that their method of operation is a logical development of the old system, whereby trains may be operated more efficiently on single track than by the exclusive use of "Superiority by Direction." The "Positive Meet" stresses the fixed element of "place" in train operation, as against the variable element of "time," as under "Superiority by Direction."

The advantages claimed for the New Haven method ars as follows:

Enhanced safety by eliminating, to a great extent, the hazard always incident to moving trains by orders, owing to the possibility of error by someone responsible for their transmission or execution.

Reduction in delays by removing the necessity for slowing down or stopping heavy trains to get orders and by allowing them to keep moving, under the positive assurance that they have the right to go to the meeting point without additional help.

Decreased uncertainties by removing any doubt as to the right to go to a schedule meeting point for opposing trains of the same class.

Reduction in train orders by taking care of conditions which would otherwise require them.

Increased confidence of employees by removing any uncertainties which cause doubt.

Removing to a large extent liability to serious delay from failure of communication facilities.

The Origin of the "Positive Meet"

From an historical standpoint it is interesting to note that the "Positive Meet" in a rudimentary form was in use on one of the New Haven's predecessors as early as 1847. The Old Colony, now a part of the New Haven, was opened from Boston, Mass., to Plymouth, on November 10, 1845. The oldest employees' time table of that railway in existence, dated December 27, 1847, contains the following rule:

"Passenger trains will wait at either end of the road and when meeting is designated until the expected passenger train arrives or is heard from. Freight trains will observe this rule with regard to each other."

THE PASSENGER FERRY BOATS of the Southern Pacific, plying the waters of San Francisco Bay, carry 39,560 life preservers, and this equipment is maintained in first-class condition, at an expense of many thousands of dollars; but never in their career have these boats (21 in number) lost a single life because of accident.

A Part of the Convention Group

Bridge and Building Men Hold Most Successful Meeting

Attendance and interest exceed all previous records; program of special merit

THE thirty-seventh annual convention of the American Railway Bridge and Building Association, which was held at the Nicollet Hotel, Minneapolis, Minn., on October 18-20, was the most successful in the long history of that organization. The registration of 240 members, who with their families and members of the Supply Men's Association comprised a party of nearly 600 persons, exceeded all previous records. The program was also of more than usual merit and the discussion particularly active while the exhibit of bridge and building materials, (referred to at length in the news columns of this issue) presented by the Bridge and Building Supply Men's Association in halls adjacent to the convention, consisted more largely than ever before of full-size units of equipments and materials, adding materially to the educational value of the convention. A feature of special interest was the attendance of 13 of the 22 living past-presidents of the organization, headed by W. A. McGonagle, president of the Duluth, Missabe & Northern, who presided over the 1896 convention of this organization.

In addition to the reports presented by eight standing committees, addresses were presented by Ralph Budd, president of the Great Northern, by U. K. Hall, general supervisor of stores, Union Pacific System, on "The Control of Emergency Material Stocks," and by J. W. Porter, special engineer, Western lines, Canadian National Railways, on "The Water Supply Problem of the Northwest." On Tuesday evening C. R. Knowles, superintendent of water service, Illinois Central, presented a paper on "Fighting the Mississippi River Flood" illustrated by slides and moving pictures. The latter three papers will be abstracted in following issues.

The officers in charge of the activities of the association during the last year were as follows: President, Elmer T. Howson, western editor, Railway Age, Chicago; first vice-president, F. C. Baluss, engineer of bridges and buildings, D. M. & N., Duluth, Minn.; second vice-president, Maro Johnson, assistant engineer, I. C., Chicago; third vice-president, J. S. Huntoon, assistant bridge engineer, M. C., Detroit, Mich.; fourth vice-president, C. S. Heritage, bridge engineer, K. C. S., Kansas City, Mo.; secretary, treasurer, C. A. Lichty, inspector, purchasing department, C. & N. W., Chicago; assistant secretary, F. E. Weise, chief clerk to chief engineer, C. M. & St. P., Chicago; directors: A. I. Gauthier, bridge and building supervisor, B. & M., Concord, N. H.; E. L. Sinclair, assistant engineer, C. M. & St. P., Marion, Iowa; O. F. Dalstrom, engineer of bridges, C. & N. W., Chicago; W. T. Krausch, engineer of buildings, C. B. & Q., Chicago; R. C. Bardwell, superintendent of water service, C. & O., Richmond, Va.; and H. I. Benjamin, assistant engineer, S. P., San Francisco, Cal.

The Committee on Subjects presented the following topics for consideration and report at the next convention: (1) The relative merits of jacking or tunneling through a roadbed under traffic, as compared with other methods of placing culvert pipe; (2) the use of motor trucks for handling bridge and building materials and supplies; (3) the construction and placing of concrete unit-built slabs for various purposes; (4) the control of motor car operations with respect to the prevention of accidents; (5) the organization and equipment for handling emergency bridge, building and water service work; (6) means of promoting co-operation between store department and field forces; (7) the wrecking and salvaging of railway buildings; (8) the economical operation and maintenance of water stations; and (9) painting the interior and exterior of railway stations, freight houses and other allied buildings.

At the concluding session on Thursday morning the following officers were elected for the ensuing year: President, F. C. Baluss, engineer of bridges and buildings, D. M. & N., Duluth, Minn.; first vice-president, Maro Johnson, assistant engineer, I. C., Chicago; second vice-president, J. S. Huntoon, assistant bridge engineer, M. C., Detroit, Mich.; third vice-president, C. S. Heritage, bridge engineer, K. C. S., Kansas City, Mo.; fourth vice-president, A. I. Gauthier, bridge and building supervisor, B. & M., Concord, N. H.; secretary-treasurer, C. A. Lichty, inspector, purchasing department,

The Attendance Exceeded All Previous Records

C. & N. W., Chicago; assistant secretary, F. E. Weise, chief clerk to chief engineer, C. M. & St. P., Chicago; directors for two years: R. C. Henderson, master carpenter, B. & O., Dayton, Ohio; T. H. Strate, engineer of track elevation, C. M. & St. P., Chicago; John S. Ekey, supervisor structures, B. & L. E., Greenville, Pa. In addition the following directors hold over for another year: W. T. Krausch, engineer of buildings, C. B. & Q., Chicago; R. C. Bardwell, superintendent of water service, C. & O., Richmond, Va.; and H. I. Benjamin, assistant engineer, S. P., San Francisco, Cal.

Boston was selected as the location of the next meeting.

Following the conclusion of the convention on Thursday noon more than 450 of those attending the meeting were taken to the plant of the American Hoist & Derrick Company, St. Paul, Minn., where, after lunch, opportunity was afforded for an inspection of the plant and of the equipment built by that company. On Thursday evening more than 250 persons boarded a special train provided by the Great Northern and the Duluth, Missabe & Northern for an inspection of the Missabe iron range, visiting the Hull-Rust open pit mine at Hibbing, Minn., and the docks of the D. M. & N. at Duluth, Minn., and concluding with a dinner given by W. A. McGonagle, president of the Duluth, Missabe & Northern, and H. Johnson, president of the Duluth & Iron Range at Duluth. Approximately 300 people traveled from Chicago to the convention on a special train provided by the Chicago, Burlington & Quincy, on the day preceding the meeting while they returned from Duluth to Chicago on a similar train provided by the C. & N. W.

In welcoming the convention to Minneapolis, W. H. Bremner, president of the Minneapolis & St. Louis, referred to the fact that this year marks the one hundredth anniversary of the granting of the first workable charter to a company that was to operate exclusively as a railroad and traced the development of our present system to its present status. "It has been said," he said, "that easy transportation for men and goods makes a nation strong and great and this is certainly true in the United States for it is our railroads that have made this the most prosperous nation in the world." Mr. Bremner then referred to the part that the bridge engineer has played in the construction of these railways. "To your care," he said, "is entrusted the lives of millions of passengers and the safety of billions of tons of freight. Without your unceasing vigilance disaster might come at any time and in any place."

W. A. McGonagle, senior past-president of the association, replied to Mr. Bremner on behalf of the association, reviewing the earlier history of the organization and relating many incidents that occurred in its formative years.

President Howson Reviews Work

At the opening session of the convention, President Howson reviewed the work of the association during the past year, in the course of which he stated that more than 700 members were now in good standing in the association, a larger number than ever before, while 67 applications for membership had been received during the year. The finances were also reported to be in a healthy condition, the surplus having been increased more than $500 during the current year.

Mr. Howson also referred to the relation of this association to other similar organizations, commenting particularly on the thought sometimes expressed that there are too many associations, in part as follows:

There are now three active associations in the engineering and maintenance of way branch of railway service, the Roadmasters' Association, the American Railway Engineering Association and the Bridge and Building Association. Obviously, there is no duplication of work between the Roadmasters' and our association. The only possibility for conflict lies between these two associations and the American Railway Engineering Association, which latter organization, by the way, is the junior of the others by more than ten years. At first glance, there might appear to be a possibility of conflict between the work of the Committee on Iron and Steel Structures and of Masonry of the American Railway Engineering Association, for instance, and of our association. Yet a review of the work of these associations for the last quarter of a century does not bear this out. A perusal of our activities will show that they have been confined consistently to the consideration of the practical field problems of bridge and building maintenance and that in no case has an attempt been made to consider problems of design, draft standards or dictate policies. The work of the American Railway Engineering Association, on the other hand, has started where our work has ended and has continued through the problems of design, of standards and of the determination of system policies. This organization is doing a work which we as a group are not prepared to perform. On the other hand, it is equally true and no reflection on the A.R.E.A. to state that as a group the members of that association are unqualified to pass on the more local but equally important problems that arise in the conduct of operations in the field.

There is still another phase of this problem to be considered. For a man to secure the largest benefit from an organization such as ours, this organization should be composed of men of as similar interests as possible, in order that he can exchange information with them freely and draw information of help to himself from them. This is not practical in an organization of widely differing ranks, particularly when an industry takes on as much of a military nature as a railway, for a man in a

subordinate position will not feel free to take issue with his superior officers in a public meeting, but will remain quiet, depriving the association of the benefit of his experience and at the same time dampening his own interest until he drops out, with the ultimate result that the combination of associations results merely in an organization of the more important heads of departments.

If, on the other hand, men of local rather than system rank have an opportunity to compare ideas with their fellows, experience has shown that they will take advantage of this opportunity with the result that they will bring back to their roads new and better ideas of attacking their own problems which are just as valuable in their way as other new ideas are to their system officers.

Ralph Budd Describes Historic Bridge

Ralph Budd, president of the Great Northern, addressed the convention on Wednesday forenoon, speaking largely of the Great Northern's historic stone arch bridge across the Mississippi just outside the Union station in Minneapolis. This structure is 2,100 ft. long, consisting of 23 arches varying from 40 ft. to 100 ft. in span, with about 900 ft. on a 6 deg. curve. It was built originally for double track and is believed to be the oldest railway bridge in the northwest that has never been strengthened or altered since its construction and is still carrying main line traffic without restriction. Except for the Eads bridge, the floor system of which has been strengthened, it is the oldest railway bridge across the Mississippi river. Plans for this bridge were started by James J. Hill in 1880, only two years after he took over the St. Paul & Pacific from receivership. The structure itself was built in 1882-1883. Mr. Hill's confidence in the development of the Northwest is shown by the fact that he built this structure of permanent construction at a time when there were few white people west of Minneapolis.

The bridge carries the following inscription "James J. Hill, president; A. Manville, vice-president; Charles C. Smith, engineer; Ed. Darrow, contractor," and is the only structure on the Great Northern on which Mr. Hill ever permitted his name to appear.

Recent Developments in Concrete Practice

A committee, of which A. B. Scowden, general inspector of bridges, Baltimore & Ohio, Cincinnati, Ohio, was chairman, presented a comprehensive report on the newer practices in the mixing of concrete in which special attention was given to the application of the water-cement ratio for determining the proportions of the raw materials entering into the concrete and to the use of methods for promoting the quick hardening of concrete. These two features are abstracted below.

In order to find out the reasons for failures of concrete in the past, the Portland Cement Association and several of our universities have in recent years made a large number of tests of concrete made with varying materials, and also with different ways of working. The results of these tests clearly show that there are right ways which produce good concrete and wrong ways which will result in poor or bad concrete.

In the past, the instructions for the proportions to be used covered only three of the raw materials, namely, cement, sand and stone, and gave no strict rule for the quantity of the fourth part, viz: water. Tests have shown that the main cause of poor concrete has been an excess of mixing water, and further, that for the same materials and conditions of handling, the strength of the concrete is entirely dependent on the proportion of water to the cement used. This proportion is called the water-cement ratio, and means the number of gallons of water to be used with one bag of cement. When the water-cement ratio is given, the amount of water is fixed for dry sand. When stored in the open, sand will usually contain more or less water. The following will give a rought idea of the reductions to be made, based on 2 cu. ft. of sand for each bag of cement:

Damp sand, ½ gal, for each bag of cement.

Fairly wet sand, 1 gal, for each bag of cement.

Very wet sand (right after a rain), 1½ to 2 gal. for each bag of cement.

As the control of the water is the most important part of the concrete proportioning, it will be well to consider what happens to concrete mixed with different amounts of water, first, in regard to early strength and next as to durability and service, and the following table shows the expected breaking strengths of various water-cement ratios after 28 days:

Water, 4¾	gal. per bag of cement:	Strength 4,100 lb. per sq. in.
Water, 5½	gal. per bag of cement:	Strength 3,400 lb. per sq. in.
Water, 6¼	gal. per bag of cement:	Strength 2,800 lb. per sq. in.
Water, 7	gal. per bag of cement:	Strength 2,300 lb. per sq. in.
Water, 8	gal. per bag of cement:	Strength 1,800 lb. per sq. in.

Concrete made with excess water may not have the strength required for the service intended, and may break up or crack for this reason, but is also likely to give less than the expected life due to other causes.

Methods of Proportioning the Aggregates

There are two ways of determining the right proportions of cement, sand and stone: the calculation method and the trial method. When the calculation method is used, the sand and stone must be accurately graded and uniform throughout. The laboratory or engineering offices obtain samples, make sieve tests of the fineness of the material, and determine by calculations the proportions of sand and stone to be used. Some railroads also use this method on the smaller jobs done by its own forces, furnishing carefully graded sand and stone, and issuing to the concrete foreman tables showing the proper proportions of sand and stone to use from the various pits or quarries for different kinds of work, water contents and slump also being specified.

With the trial method the proportions of sand and gravel are determined in the field, sample batches being made until the proper workability is obtained. Where the work is handled by railway forces and the exact proportioning is not given on the basis of laboratory tests the trial method will be the only way for the concrete maker to determine the proper proportions of sand and stone. The experienced man will know from the condition of the batch if it is workable or not and will know how it can be improved if it does not seem just right.

After the desired mixture has been determined the slump test can be used as a check on the work during its progress. If any large change in slump should occur, there has generally been some change in the character of the sand or stone. Not only is the slump test valuable as a check on water content and workability by the measuring of the slump, but the experienced concrete maker will soon find out that the concrete from the slump cone is actually a small sample from the batch, spread out before his eyes for inspection.

It is apparent from the foregoing that the determining features are entirely of a practical nature, proved by practical results, and that the experienced and conscientious concrete maker is in every way in a better position to judge these than the man in the office, unless the latter has made a thorough scientific investigation of the materials.

When a deep section of concrete is poured continuously the weight of the mass will force mixing water from the lower part of the concrete towards the top. This surface water should either be removed or the following batches mixed drier and thoroughly worked in the forms, so that the excess water can be taken up by the new concrete and the strength kept the same throughout.

Concrete of High Early Strength

Concrete of high early strength is usually obtained by one of the three following methods:

(1) Use of ordinary Portland cement with a low water-

cement ratio, which will require rich mixtures for workability.

(2) Use of ordinary Portland cement, adding chemicals for speeding up hardening.

(3) Use of special quick-hardening cement.

Bearing in mind that cold weather makes hardening much slower, there is shown below a table published by the Portland Cement Association, showing typical rich mixtures and their gradual increase in strength. This is based on 70 deg. minimum temperature, moist curing and not less than one minute mixing time and the use of the Portland cement without hardeners:

Water-cement ratio (gal. per sack)	Compressive strength in pounds (cured wet until test)				Typical mixes (illustrating range for a particular set of aggregates)		
	1 day	3 days	7 days	28 days	Slump (ins.)	Mix	Bbl. cem. cu. yd.
7½	100	500	1,100	2,000	6-7	1:2:3½	1.40
6½	230	830	1,530	2,600	2-4	1:2:3½	1.40
6	300	1,000	1,800	3,000	½	1:2:3½	1.40
6	300	1,000	1,800	3,900	6-7	1:1½:3	1.65
5½	370	1,230	2,070	3,400	2-4	1:1½:3	1.65
5	470	1,500	2,400	3,900	½	1:1½:3	1.65
5	470	1,500	2,400	3,900	6-7	1:1:2	2.25
4½	600	1,800	2,800	4,300	2-4	1:1:2	2.25
4	830	2,130	3,170	4,900	½	1:1:2	2.25

Calcium chloride is the most commonly used chemical for speeding up the hardening of Portland cement concrete. It can be bought commercially from the manufacturers in the form of white flakes, but can also be obtained in the form of a powder said to contain lime and calcium chloride, the contents of the latter being about one-third of that in the commercial product. A liquid is also on the market which contains calcium chloride in solution.

There are some Portland cements on the market which are quick-setting, but in cases where early strength is urgent, use is made most frequently of a high alumina cement. Concrete made with this product is not quick setting and if the proper precautions are taken, the mass will remain workable for ample time to permit its handling from the mixture into the forms and working in them. In 3 to 4 hours, however, the hardening process begins and the mass then gains strength very rapidly, gaining in 24 hours approximately the same breaking strength as Portland cement concrete mixed in the same proportions after 28 days.

At present market prices its cost is approximately three times that of Portland cement, and the cost of the concrete with which it is used will be increased from $4 to $8 per cu. yd. It is, therefore, not expected that it can compete successfully with Portland cement for ordinary work, but there are many special conditions where its use will be found justified. Where it is urgent to obtain concrete strong enough for service in the shortest possible time, it will be found of particular value.

The mixing of alumina cement with Portland cement is not recommended and the manufacturers of both products strongly recommend against mixing them.

Discussion

This report aroused active discussion which centered largely about the use of quick-setting cements and the water cement ratio. In reply to a question from C. W. Wright (L. I.), A. C. Irwin (Portland Cement Association) stated that it was not advisable to mix cement accelerators with Portland cement for by this means the characteristics of both products are changed and one gets a "flash" set. A number of members cited the beneficial results from the use of these materials in turntable foundations, machinery foundations, etc., stating that concrete poured as late as six o'clock in the evening was ready to receive machinery by seven o'clock the next morning. H. A. Gerst (G. N.) cited an instance where quick setting was secured by the use of a high cement content on two recent jobs where live load was placed on girders encased in concrete in two or three days after the concrete was poured.

In discussing the water cement ratio, W. T. Krausch (C. B. & Q.) described a booklet of instructions, which has been prepared for the use of foremen on that road, classifying the concrete in seven groups of different strengths for various types of structures and giving the proportions for each of these various classes of concrete when made of aggregates from the various pits on that road, these proportions being determined after a scientific investigation of the characteristics of the aggregates from those pits, supplemented by laboratory tests with actual concrete mixtures using these materials. With this table a foreman can determine promptly what mixture he should use for concrete for a certain purpose with aggregate from any standard pit on that road. The discussion of this subject showed a rapidly growing realization on the part of bridge and building men of the necessity of giving their foremen information which they can use in determining the proper mix of the concrete they are making.

Excavation for Foundations

Because of the diversity of the excavation problems confronting bridge and building forces in constructing foundations for various structures, a committee was appointed to consider economical ways of handling this work. This committee through its chairman, H. I. Benjamin, assistant engineer, Southern Pacific, San Francisco, Cal., presented a comprehensive report in which it divided the subject into three parts: Foundations for structures supporting the track; foundations for buildings, sewers, etc., and foundations for turntables constructed under traffic. Its conclusions are summarized as follows:

The method of jacking corrugated or cast iron pipes through fills was described. For concrete, pipe trenching was recommended to a depth of eight feet below the track and tunneling where the depth was greater.

For large excavations, such as for bridge piers and abutments, the desirability of the consideration of the equipment to be used was stressed, with the recommendation that this be such as to dispense with work trains to as great an extent as possible due to the cost of such service and the delays incidental to their use.

The problems encountered in the construction of cofferdams were cited and the relative merits of wooden and steel sheet piling were considered, together with the types of pumps for disposing of the water. Cylinder piers were also discussed.

For foundations for buildings, cinder pits, sewers, etc., the use of the various types of labor-saving devices of various kinds was recommended for all but the smaller pieces of work, and reference was made to different jobs which had been handled by such equipment.

Reference was made to the special conditions involved in replacing turntables with larger structures and the methods which can be used to expedite the work and reduce the costs.

In handling various types of excavation work the committee listed certain fundamental principles in the interest of economy, as follows:

(1) Thorough planning, organizing and supervising of the work. A bridge and building foreman in responsible charge of the actual work, acting under and reporting to his superior officer.

(2) The use of labor-saving devices wherever possible, particularly those which will not interfere or be interfered with on account of train operation.

(3) The judicious use of work trains, bearing in mind the economical handling of the job and the cost and loss of time incidental to their use.

(4) The care and maintenance of equipment during the construction period, so as to avoid delays due to break-downs or to equipment being out of repair.

(5) The thorough overhauling and repairing of equipment immediately after a job has been completed, so as to have this equipment ready for emergency use or for the next job.

(6) Careful watching of the job so as to avoid accidents, which can be accomplished only by the personal supervision and alertness of the foreman and his assistant.

Discussion

In discussing this report H. A. Gerst (G. N.) cautioned the members to be sure that, when depositing con-

crete under water, there be an excess of cement in the mix, at least seven bags of cement per cubic yard of concrete, because after the concrete is set and the water pumped out the chances are that there will be from one-eighth of an inch up to two inches of "laitance" on the top.

Stockyards Facilities

The committee, of which H. Heiszenbuttel, supervisor of bridges, C. & N. W., Norfolk, Neb., was chairman, submitted a report on stockyards facilities and their maintenance, of which the following is an abstract:

Stockyards are important facilities in the operation of railroads for collecting and loading live freight and vary in size from the chute and one small pen at an obscure siding to the large collecting or holding yards in the range country where full trains are loaded daily during the fall movement of range stock to market. Between these two extremes are the ordinary stockyards where one or more cars of stock are loaded almost every day. This type, because of continual use, requires frequent inspection and repairs.

Fences are generally built of plank but woven wire fence has been used in an experimental way on the Union Pacific and the Chicago & North Western. These fences have required no maintenance since they were installed; however, as they have been in place only about two years, their lasting quality as compared with plank has not yet been determined. Woven wire has given good satisfaction and service for sheep loading yards.

Loading chutes for cattle must of necessity be of strong construction and the slope of the floor should not be more than one foot in four. For loading double-deck cars where such loading is done only occasionally a double-deck loading apron is provided, but where requirements for loading double-deck cars are more frequent in the western territory, as where many sheep are loaded, a double-deck chute is provided. The Union Pacific and the Chicago, Burlington & Quincy provide double-deck chutes built alongside the standard stock chute, with a sufficiently steeper pitch so that the upper end will be at the same height as the top floor in the car at a point six feet from the top end of the chute. With this type of double-deck chute the upper and lower decks of the car are loaded at the same time.

The Chicago & North Western provides a double-deck chute which is built longer than the standard chute, with the top of the floor level with the top of the platform 16 feet back from the front of the platform. This section of floor forms an apron which is hinged at the break in the chute floor and is raised and lowered with counterweights and cables which pass over sheaves in a frame at the top of the posts. The apron reaching to the car is hinged to the end of this movable section of floor and folds back into the clear when not in use. This type of double-deck chute gives good satisfaction, especially for loading hogs in double decks as, with the floor raised to the upper deck, the chute has the same easy slope all the way.

One of the most difficult problems in connection with the maintenance of stockyards is to keep the floor of the pens reasonably dry, and to keep out mud holes which are usually caused by some shipper flooding the yard through carelessly leaving the hydrant open. The first aid usually given is a car of cinders, but this filling lasts only a short time, especially with hogs. Some yards have been paved with coarse crushed stone with a gravel or cinder top finish, which, while expensive, will last. Gravel has also been used and it makes a good paving for a time, but with the annual cleaning out it gradually disappears. A cheap and effective paving has been provided by covering the floor of the pen with old track ties closely laid and chinked, and with a covering of dirt or cinders. Unless pens are continually flooded, this type of paving will last a number of years.

Water troughs are made of wood, metal and concrete. Wood water troughs are made of 2-in. plank and are in frequent need of repair and renewal because of leaks caused by shrinking. Metal troughs are made of heavy galvanized iron and can be had in various lengths. Concrete troughs are made over standard forms at some central point and shipped out as needed. These are very heavy and have the additional advantage over wood and metal troughs in that they need no fastening as they are heavy enough to stay in place.

Sheds are provided in stockyards as local conditions require, usually about one-third of the pens being protected with sheds. For the ordinary stockyards, sheds about 16 ft. by 32 ft. are generally sufficient, since ordinarily only one car of stock is kept in each pen. Sheds are generally built with a fence forming the back side and with the front side open.

Scales for weighing stock, where provided, are usually of 4-ton capacity, with 8 ft. by 14 ft. platforms, with suitable racks or frames with gates on each end, and wherever necessary, with connecting fences leading to pens. They are set with either concrete or brick pits, or with a pit and foundation of second-hand timber. As a general practice no part is enclosed except the beam.

Discussion

In discussing this report J. H. Markley (T. P. & W.) stated that while it was possible to buy fencing lumber for $12.50 per thousand feet b.m. years ago, this material now costs $65 to $70 and that as a result he has been building his stockyards fences of the heaviest woven wire available for the last six years. W. A. Batey (U. P.) also stated that on his road three different types of woven wire are used successfully in 72 in. widths, although this construction requires 20 per cent more bracing and more care in setting the corner posts and in attaching the wire to the posts. W. T. Krausch (C. B. & Q.) emphasized the importance of the proper maintenance of scales because of the fact that the shipper buys and pays for stock on the scale weights. H. I. Benjamin (S. P.) deprecated the use of old bridge timbers for floors in stockyards because of the fact that the slime in the pens causes the wood to become slippery and frequently leads to claims for broken legs and other damage to stock while it is also a costly and difficult job to renew a floor of this character. In its place, he favored the use of gravel or crushed rock. L. C. Smith (I. H. B.) described an experience with concrete floors which were found to be slippery and which were finally replaced with paving brick with satisfactory results. A. B. Scowden (B. & O.) stated that satisfactory results had been secured with concrete floors on his road where they had not been finished to a smooth surface but where the concrete, after being poured, was roughened by dragging cables over it in different directions. W. B. Koehn (C. P. R.) described a feeding station built on his road a few years ago where the floors were constructed of cinders on a two-foot fill with shovel-finished concrete runways roughed off with cables, which had been found very satisfactory. In the older yards on this road brick has been used for runways, giving a better but more expensive floor. S. Lincoln (G. C. & S. F.) stated that a floor of 18 in. of shells had proved satisfactory on his lines where difficulty had been experienced with concrete.

The Maintenance of Water Treating Plants

In accordance with the practice of this association of selecting one subject of special interest to water service men for consideration at each convention, a report was presented this year on the Maintenance and Operation of Water Treating Plants, by a committe of which C. E. Brightwell, supervisor of water service, C. & O., was chairman. After reviewing the magnitude of the water requirements of the railways and emphasizing the fact that less than one-third of the water used by locomotives is now treated properly, the committee presented an out-

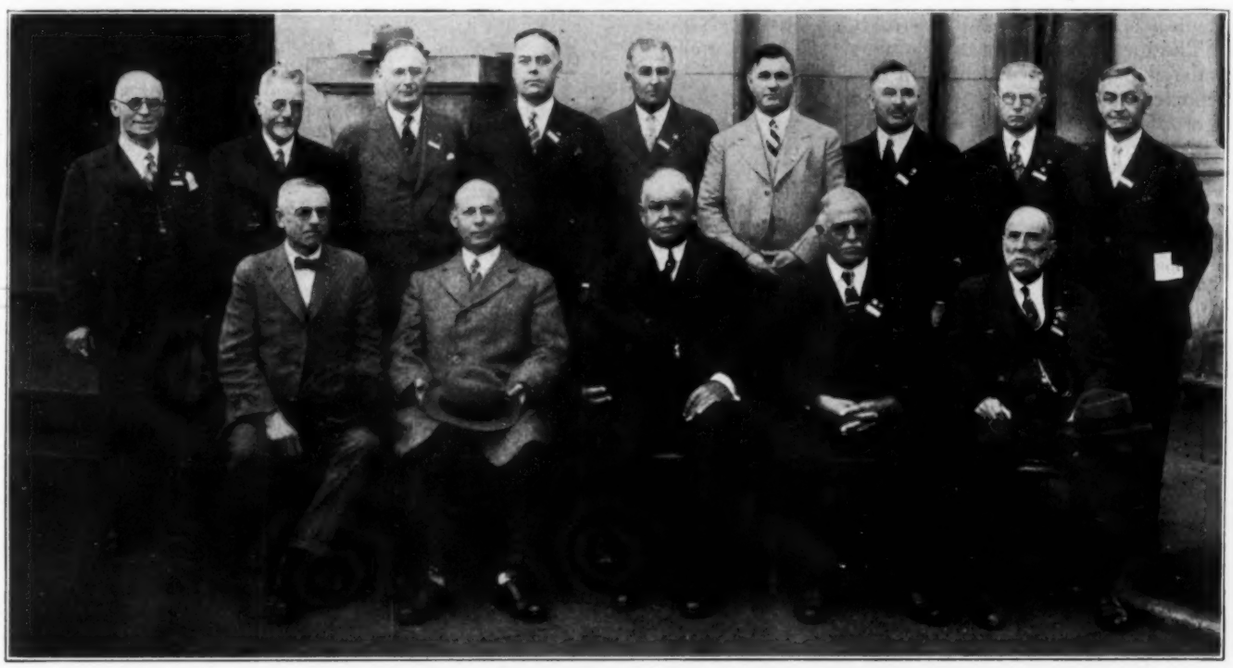
line of the more important points which should receive consideration by supervisory water service officers. These suggestions are in part as follows:

Orderliness and cleanliness are of first importance. It may be possible to secure satisfactory results with dirty and ill-kept plants but the probability is in the other direction. The appearance and general condition of the plant are indicative in a general way of the ability of the operator and of the supervisory forces.

The technical nature of this work necessitates that it must come under the general supervision of men trained in the understanding of the chemical principles involved as well as the mechanical and engineering features. Under this supervision several plans are in effect for detailed inspection, check and control. To be successful these must be ample to insure proper treatment regularly, which means every day on every shift, rather than of an intermittent character.

All concerned, particularly the division supervisory officers interested in or responsible for plant operation, should be kept posted regarding the test results, at least to the extent of their enforced, based on observations of sludge accumulation, for cleaning tanks to prevent sludge getting out to locomotives. Observation should be made occasionally by the operator to insure that all valves are tight and that no leakage exists between the raw and treated water sides of the plant that will stir up milky water and cause foaming complaints. The operator should call the attention of the inspector or supervisor promptly to any trouble which he cannot correct.

Detailed instructions covering the operation of continuous plants are usually given to, or posted for each plant, and these rules should be adhered to. The chemical charges are based upon the addition of a definite number of pounds of lime and soda ash to each thousand gallons of water, and any fluctuation should be corrected promptly, or reported to the chemist, in order that the chemical formulae may be adjusted accordingly. Where excelsior filters are used, they should be renewed before they become clogged to the extent of starting short circuit currents in the sedimentation tank. The accumulation of sludge on filter beds should be prevented by back-washing and flushing with a hose when necessary, following carefully the instructions of manufacturers. Regular and consistent treatment is necessary to secure the desired effect in locomotive or steam plant use.



Thirteen Past-Presidents Attended the Convention

Front row reading from left to right: C. A. Lichty, inspector, purchasing department, C. & N. W., Chicago, 1905; A. Montzheimer, chief engineer, E. J. & E., Joliet, Ill., 1904; W. A. McConagle, president, D. M. & N., Duluth, Minn., 1896; J. H. Markley, master bridges and buildings, T. P. & W., Peoria, Ill., 1907; and F. E. Schall, bridge engineer, L. V., Bethlehem, Pa., 1912. Rear row: J. P. Wood, supervisor bridges and buildings, P. M., Saginaw, Mich., 1925; J. S. Robinson, retired division engineer, C. & N. W., Chicago, 1924; F. E. Weise, chief clerk to chief engineer, C. M. & St. P., Chicago, 1920; Elmer T. Howson, western editor, *Railway Age*, Chicago, 1927; S. C. Tanner, superintendent maintenance of way shops, B. & O., Martinsburg, W. Va., 1918; Lee Jutton, contractor, Milwaukee, Wis., 1919; George W. Rear, engineer of bridges, S. P., Pacific System, San Francisco, Cal., 1916; C. R. Knowles, superintendent of water service, I. C., Chicago, 1922; and C. W. Wright, master carpenter, L. I., Jamaica, N. Y., 1926.

being satisfactory or otherwise and they should be furnished suggestions or recommendations promptly for correction and improvement.

As a general rule, these plants are designed to fit in with water station facilities already in service, the equipment used is selected to meet the local conditions and it is customary for the operator to handle all light running repairs.

Where lime and soda ash are used, it is necessary that they be kept dry to prevent deterioration. This is especially true in plants using bulk quicklime, where air-tight compartments with refrigerator type doors are used. High-grade chemicals are now generally purchased for this work, based on or similar to the standard specifications of the American Railway Engineering Association, and any uncertainty in the quality caused by improper storage is very apt to affect the treatment results adversely.

With intermittent type plants, care should be exercised by the operator to make sure that the tank gages register with reasonable accuracy. Chemical pumps and agitating equipment should be kept in good working order and operated carefully in accordance with instructions. Definite regulations should be

A few days' shut down of the treating equipment may frequently offset or discredit many months of good results. The most satisfactory method appears to lie in a check of the facilities and equipment frequently enough to insure regular and uninterrupted service.

It is impossible for the supervisor on a busy division to give his individual attention to the many details required in proper treating plant maintenance. As a general rule the operator is held directly responsible for minor repairs which can be handled conveniently in connection with his other duties. It has been found to be the best practice to hold the road mechanic or division repairmen responsible for all running repairs of a mechanical nature, as well as for a detailed check to insure proper attention and care by the operator. By the assignment of definite responsibility and with a clear understanding of what each man is supposed to do, the improvement in maintenance conditions at water treating plants will fully equal the good records which have been made in keeping up other water station equipment.

Discussion

The discussion of this report dealt principally with the disposal of the sludge from treating plants. R. E. Coughlan (C. & N. W.) stated that it is an excellent tonic for foul land, for when the water is evaporated it is 90 to 95 per cent carbonate of lime, very similar to powdered limestone, although while some of the western universities are now experimenting with it relatively little demand has been created yet. A. B. Scowden (B. & O.) stated that in the design and location of treating plants on his road, a number of different methods of sludge disposal are considered, including (1) turning it into a running stream, (2) collecting it in a permanent sedimentation basin large enough to hold 10 or 12 years' discharge and (3) discharging it in a ravine or on open ground. J. R. W. Davis (G. N.) stated that it is the practice on his road to run sludge into streams where this is possible and otherwise to run it into a basin from which it can be removed by locomotive cranes with buckets. E. P. Farrell (M. P.) stated that where it is impossible to discharge the sludge into a drainage ditch, it is run into a pit which is cleaned out at intervals of one, two or three years, and the material deposited in a fill. L. M. Bates (C. & N. W.) stated that he has interested a farm bureau and the Chamber of Commerce in one of the cities along his line in the use of this material as a fertilizer on sour land and that several farms are now using it experimentally.

Repairing Waterproofing on Concrete Structures

The methods employed by various roads for applying and repairing waterproofing on concrete structures were reported on by a committee of which T. H. Strate, engineer of track elevation, C. M. & S. P., was chairman. The conclusions of this committee with reference to the causes of failures and means of correcting defects follow:

It is evident, from information received from a large number of roads in various parts of the country, that the trend of the practice is to follow the A. R. E. A. specifications for waterproofing and that the membrane method is the most practical. Material furnished under the existing specifications will no doubt be satisfactory and should give service with proper application. Good material and poor application may not give as good results as inferior material with correct application. Included with workmanship or application is the question of flashing. It is just as necessary to flash waterproofing properly as it is to flash around chimneys and other projections through the roof.

Failures are due to the following causes:

(1) Holes made in fabric during application.

(2) Waterproofing covering not being self-healing, leading to cracks from expansion, vibration or deflection, allowing water to enter.

(3) Insufficient provision at the points where the waterproofing covering begins and ends.

(4) Lack of proper protective coats over the waterproofing covering.

(5) Settlement of abutments, which open up the waterproofing above the cross-girders.

(6) Waterproofing extending above the ballast line and exposed to sun and frost, causing the exposed portions to slump.

(7) Cracking or rupture of waterproofing by vibration under moving loads.

(8) "Bridges" formed in laying the waterproofing by failure of the membrane to conform to irregularities of the surface.

(9) Rending of the waterproofing course, caused by the movement of the concrete floor mass in expansion and contraction or in settling.

(10) Poor or improper design of structure.

(11) Poor material.

(12) Poor workmanship.

(13) Deterioration or decomposition.

(14) Breaking due to bond between surface of structure and membrane. Shrinkage coupled with expansion and contraction of structure, especially alongside of girders.

(15) Placing waterproofing in freezing weather and against damp or frozen surfaces.

(16) Top of slab not finished to true grade or smoothed, making pockets for gravel to work into.

Means of Correcting Defects

Suggestions for correcting failures in waterproofing are as follows:

(1) Replacement of mastic or concrete coverings with liquid asphalt, covered with fine gravel.

(2) Cleaning and dressing mastic covering and placing concrete protective coats.

(3) Complete renewal of older types of waterproofing, using membrane waterproofing and concrete protective coats.

(4) Special protection along ballast stops and walk plates to insure tight joints where concrete and steel join.

(5) Provide natural asphalt with the following characteristics: high melting point, physical and chemical stability; maximum ductility; low penetration; minimum susceptibilty to temperature changes between 0 deg. and 100 deg. F. and minimum loss of inherent qualities through heating. Of the four membranes, wool felt, asbestos felt, burlap and cotton cloth, the latter is the most satisfactory, but it will eventually be rotted by water unless properly protected, which should consist of complete saturation and not a mere coating of the fibres with asphalt.

(6) Provide additional drainage, such as tile on top of concrete protection to hasten run-off.

(7) Provide sufficient slope. This is often dependent on permissible depth of floor, but should be at least 1 in. in 8 or 9 ft., where possible.

(8) Cut the damaged portion back until all loose or damaged parts have been removed. Then dry the concrete thoroughly and apply a coat of hot waterproofing about ¼ in. thick. After being satisfied that it is bonded to the concrete, the remainder can be applied in the usual way until the required thickness is obtained. By using a welding torch all the way around the patch a very satisfactory bond between the old and new waterproofing can be obtained.

(9) On highway bridges, waterproofing by membrane can be omitted but cared for indirectly by use of a 2-in. to 2½-in. asphalt pavement directly on slabs.

One of the great troubles in the maintenance of concrete structures is the fact that when a leak is first noticed repairs are not made at once. Waterproofing as a rule costs about one per cent of the total cost of the structure and inasmuch as the life of the structure and incidentally the cost of maintenance depends on keeping water away from the concrete, it would seem that one could afford to spend more money to obtain a perfect job of waterproofing.

Discussion

The discussion of this report indicated the baffling character of many of the problems that result from the penetration of water through waterproofing. F. E. Schall (L. V.) described his practice of covering the waterproofing with a layer of 1½ in. hard burned or asphaltum brick laid in sand with poured joints to permit access to any leak which might develop without disturbing the entire structure. E. C. Neville (C. N. R.) described the success which has followed the practice of his road of using coal tar and asbestos fibre as a filler where overhead sidewalks have shrunk away from girders. Several members took issue with the suggestion in the report that all of the waterproofing membrane be removed when repair was necessary, stating that they had been succesful when removing only the portion about which leaks developed. C. W. Wright (L. I.) stated that his road had secured best results by contracting the repair of waterproofing of his structures to companies specializing in that work.

A Uniform Working Program

In common with the Roadmasters' Association and other organizations, this association is giving serious consideration to ways of rearranging work to permit the more uniform employment of forces throughout the year. A committee, of which F. P. Gutelius, Jr., division engineer, D. & H., Oneonta, N. Y., was chairman, presented a report on this subject from which the following is abstracted.

The efficiency of the operation and organization of a railroad is judged by its accounts; and in reference particularly to bridge and building work, through the Interstate Commerce Commission's primary accounts, reflecting the major and minor structures expense. The cost of labor forms approximately 30 to 40 per cent of this expense, material costs forming the remainder. The intelligent and economical distribution of these two expenditures form the basis upon which a successful maintenance organization is built and it is generally conceded that a uniform distribution of bridge and building work throughout the year offers a partial solution.

There appears to be an almost universal appreciation of the serious effect that intermittent employment has on the organization and efficiency in maintaining the railways of the country. This can be corrected or minimized by working out a more scientific method of arranging our maintenance work whereby large armies of workers will not be idle during a very considerable part of the year. To accomplish this end a program must be adopted and this warrants careful consideration. The management must adopt a definite policy covering such items as the replacement of culverts by pipes, the reconstruction of wooden trestles, the closing of openings in the track, the periodic overhauling of buildings and the regular painting of bridges and structures, before a program can be prepared.

A program once adopted must not be deviated from, and yet it must contain a certain amount of flexibility, as experience has shown that extra work such as unlooked-for appropriation work, repairs to buildings and structures due to accidents, etc., tends to distort it at times. Some roads program only bridge and culvert work, other roads program the painting of bridges and structures as well, while still other roads have undertaken to program the entire season's work with the forces at their disposal. In 1923, this Association went on record as favoring the practicability of a uniform painting program for the entire year.

The supervisory officers are in a large measure responsible for the success of the program. The failure of the program method of carrying on bridge and building work is usually found in the details of the program. The program must be intelligently prepared and the material must be ordered sufficiently in advance to insure delivery on the site in keeping with the program. The various program labor items must be followed closely to insure the work being completed on time and this routine necessitates supervision of the highest caliber.

Advantages of a Uniform Force

Bridge and building work is not as seasonal as we are inclined to believe. Cold weather may retard construction progress, and on very cold days when men cannot work efficiently outdoors. These features may add somewhat to the cost, but with experienced labor engaged in the work this increased cost is compensated for by the quality of the work.

An even distribution of bridge and building work over the year has several decided advantages. An item of bridge and building repairs that affects the movement of trains can find its position in the program so that its completion can be undertaken during the light traffic season.

Manufacturers of railway supplies report that their facilities are seldom seriously taxed to capacity and that the hand-to-mouth policy of purchasing is largely responsible for wide price fluctuations.

The year-around use of equipment also warrants attention. In programing bridge and building work consideration must be given to the equipment available so that it can be kept working as continuously as possible, thus rendering the maximum return on its investment. Furthermore, the year-around use of equipment will often reduce the total amount of equipment necessary and may postpone or avoid the purchase of additional equipment,

The year-around employment of labor in a bridge and building organization has many decided advantages. A satisfied workman is usually a good workman. An organization with a small labor turnover presents an organization that is flexible, and forms the nucleus for the larger organization occasionally necessary for extraordinary work.

To compile and record the progress of the program, more or less elaborate records are required. To obtain an accurate comparison of the performance of the various gangs, uniformity in the reports submitted by the foremen is necessary. All forms should be as simple as possible. To secure the proper results, detailed instructions governing the distribution and reporting of the time and material charges are required.

Conclusions

(1) A bridge and building work program is essential in promoting a uniform distribution of bridge and building work.

(2) A definite basis upon which to build the program is imperative.

(3) A program on either a large or a small scale is feasible.

(4) The economies to be derived from a program are large.

(5) The advantages enumerated in the body of the report are such as to make a more uniform distribution of bridge and building work highly desirable.

Therefore, the committee urges that the American Railway Bridge and Building Association recommends the adoption of a program whereby a uniform distribution of bridge and building work throughout the year can be effected.

Discussion

The active discussion on this subject indicated the live interest and also the wide difference of opinion that prevail among bridge and building men. W. F. Koehn (C. P. R.) and J. W. Porter (C. N. R.) emphasized the difficulty in handling any considerable amount of work during the winter in territories traversed by their lines. C. E. Donaldson (C. V.), on the other hand, stated that on his road it has been found economical to keep bridge gangs employed during the winter on wooden trestle work, thereby releasing the men of excavation and other distinctly summer work in the spring. Likewise T. E. O'Brien (D. & H.) stated that his road has not laid off a man in four years. On that road there is more masonry work to be done in the winter than the gangs can take care of. Shop floors are laid at that season, while station repairs are also done then. Mr. O'Brien emphasized the importance of a definite program of work in making winter work a success. E. L. Sinclair (C. M. & St. P.) also emphasized the importance of a program which, on his road, is prepared as soon as the completion of the fall inspection, showing the estimated number of man hours required for each job and the dates on which the different tasks should be undertaken. In making this schedule, consideration is given to that work which can be done during the winter and the program is arranged accordingly.

Materials for Highway Bridge Floors

A committee, of which John S. Ekey, supervisor of structures, B. & L. E., was chairman, presented an extended report on the relative merits of various materials employed for floors on highway bridges. After comparing the practices of different railways and state highway departments the committee drew the following conclusions:

In discussing the relative merits of various materials for floors on highway bridges it is necessary to consider also the methods of constructing not only the floor itself but in some cases the

entire floor system. It will be recognized readily that the best floor is that which has the least chance for vibration, is watertight and fireproof. A smooth surface is essential to the reduction of vibration but a smooth surface cannot be maintained over a floor system that is improperly designed. The concrete floor over a properly designed substructure meets the requirements of present day traffic conditions better than any other form of construction. For heavy traffic conditions the concrete slab should be waterproofed and a wearing surface of either concrete, asphalt or brick used, depending on local conditions, including the ease with which these materials can be obtained and handled, and the grades on the structures. Good brick laid with an asphalt filler is likely to give a wearing surface of long life. Asphalt has exceilent riding qualities where grades permit but, except where proper facilities are at hand, is liable to prove costly when repairs become necessary. On the whole, a concrete wearing surface, independent of the floor slab, is likely to be generally more acceptable.

For medium or light traffic conditions on secondary highways, the concrete slab itself, without the addition of a wearing surface, should prove entirely satisfactory, provided proper conditions of design and construction are adhered to. If wear or cracks develop they can be taken care of with an application of one of several kinds of bituminous materials such as rock asphalt, tarvia or asphaltic concrete, but care should be taken to see that this is done in time so that the floor may be kept watertight. A first class concrete floor, such as is recommended, will be high in first cost but we believe that the added cost will be more than offset by the lack of maintenance cost and the inconvenience encountered in maintaining any other class of floor designed for heavy or medium traffic.

For light traffic conditions where the entire structure is to be new or renewed, we strongly recommend that the more permanent concrete floor should be used in preference to the best wood floor. In many cases this will require a better substructure than would be called for in using a wood floor, and to many the cost will seem out of proportion, but the additional cost will be offset by renewals in a comparatively short time. In many cases existing steel bridges may, without undue expense, be reinforced to carry a concrete floor.

When wood floors must be retained, we recommend a treated sub-floor not less than 3 in. in thickness and a wearing surface of not less than 2 in., both courses of plank to be dressed to a uniform thickness and laid in such a manner as conditions or local preference may require.

In the repair of existing floors, instead of the too prevalent and costly method of frequent replacements of plank in kind, more consideration should be given to making these floors as permanent as possible and suitable to present day conditions. The use of thick flooring material permits wider spacing of stringers, thus reducing the pockets under the floors. Consequently, the gases from locomotives will be dispelled more quickly. A bituminous surfacing is recommended on wood floors, which surface should be of such material as will compact well and should be from 1 in. to 2 in. thick to provide a smooth riding surface and a watertight floor.

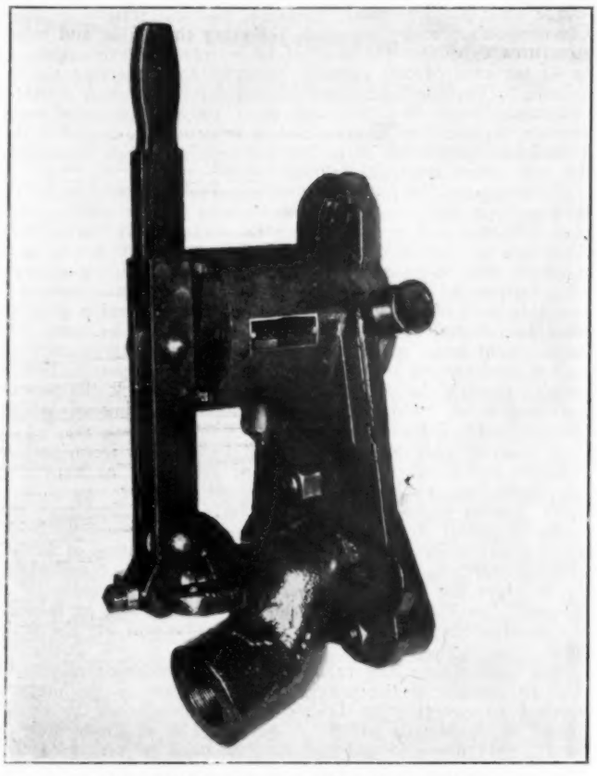
Discussion

The discussion of this report centered largely around the question of whether planking should be laid crosswise or longitudinally on a structure. F. C. Baluss (D. M. & N.) and George Rear (S. P.) advocated longitudinal construction, Mr. Baluss stating that planking laid in the direction of vehicular travel will last four or five times as long as if laid crosswise, while it is also less noisy. J. Huntoon (M. C.) opposed the use of longitudinal planking on steep grades. A. I. Gauthier (B. & M.) advocated the use of two-inch untreated planking as a wearing surface over three-inch creosoted plank on creosoted stringers, opposing creosoting the upper or wearing surface because of the danger of its becoming slippery.

Sir John Pringle, chief inspecting officer of the British Ministry of Transport in his annual report on railway accidents investigated by the Ministry in 1926, says that of the nine collisions between trains, which are included in the record for that year, three, it may be assumed, would have been prevented by a suitable system of automatic train control; and he proceeds to observe that justification for calling upon railway companies to incur the necessary expenditures for introducing automatic train control, is still lacking.

A Power Blow-off for Locomotives

THE Bird-Archer Company is introducing an attachment for operating locomotive blow-off cocks by power. The device has two parts, the power attachment proper and a cab-operating valve. The power attachment is bolted to the blow-off cock and consists of an air cylinder and a two-way piston connected to an upright lever which opens and closes the blow-off.



The Wilson Power Blow-Off Device

One face of this piston exposes a full surface to the air pressure while the exposed area of the other face is greatly reduced. Two small pipes connecting ports in the cylinders with the operating valve in the cab furnish the air with which the device is operated.

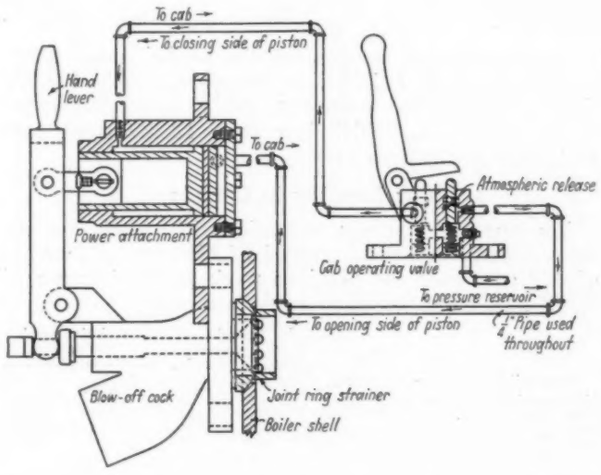
When air enters the back end of the cylinder, the piston is forced out, opening the blow-off cock valve, while air entering the front end of the cylinder moves the plunger backward, thereby closing the blow-off. The air is obtained from the main air reservoir of the locomotive.

The function of the cab-operating valve is not only to supply air pressure to the cylinder so that the blow-off cock can be opened or closed as required, but also to cushion the movement. The cab device has two valves, both operated by the same lever. The forward valve governs the air for opening the blow-off while the air from the rear valve closes it. When the cab lever is moved forward, it engages the rear valve before coming into contact with the forward valve. In this position, air from the reservoir passes into the front end of the cylinder, pushing the piston backward, thus closing the blow-off. Meanwhile any air in the back end of the cylinder is forced through the pipe to the forward valve in the cab mechanism where a small hole permits

a gradual release. The effect of this is to maintain a sufficient back pressure in the cylinder to avoid the danger of a sudden closure of the blow-off cock valve under the steam pressure in the boiler.

As the cab lever is moved ahead or into the second position, it comes into contact with the forward valve which lets air from the reservoir into the back end of the power cylinder, with the consequent opening of the blow-off valve against the air pressure maintained on the reduced area of the front face of the piston, thereby cushioning the movement. In normal operation, the cab lever is moved the entire distance when opening the blow-off valve and released to close it, the blow-off cock closing automatically as soon as the air pressure in the cylinder has completely escaped.

The cab valve is an adaptation of the McGrath air hammer valve, and the apparatus as a whole is called the Wilson Power Blow-off after the inventor, L. F.



Construction of Power Attachment and Connections with Blow-Off Cock and Cab Valve

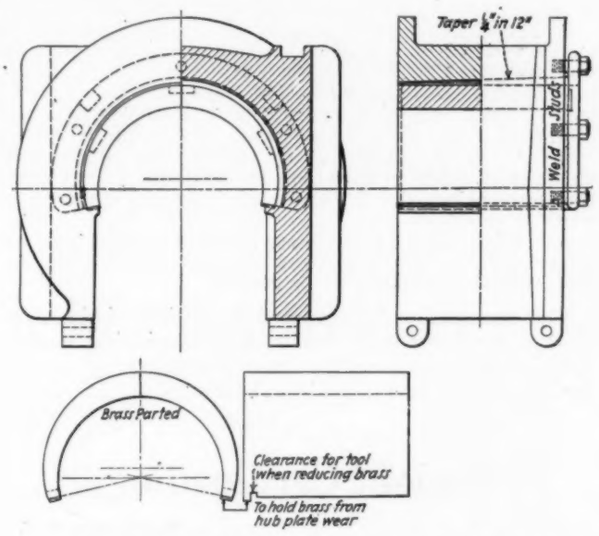
Wilson, vice-president of the manufacturing company. While designed primarily for use in connection with the Bird Archer blow-off, it is adapted for operation with any type in which the blow-off valve is normally in the closed position. Its outstanding feature lies in permitting operation from the cab of locomotives without restricting the position of the blow-off cocks on the firebox.

Driving Box With Adjustable Brass

A NEW driving box with adjustable brass, developed recently and now being tried on a number of roads, is known as the James driving box, supplied to the railroads by Morris B. Brewster, Inc., 332 South Michigan Boulevard, Chicago. The prinicpal feature of this driving box is that wear in the brass crown bearing may be taken up and the brass adjusted or renewed without the time and labor cost involved in taking down binders, dropping wheels, removing grease cellars, etc. The driving box is designed to prevent lost motion in the main bearings, to increase the life of these bearings and to reduce rod pounding and consequent rod and frame breakage. It is said to permit wearing driving box brasses down to a low limit of thickness before scrapping them.

The construction of the James driving box with adjustable brass is clearly indicated in the drawing. The crown brass itself, in two parts, extends somewhat below the center line of the journal giving more than the usual bearing surface to resist thrust. The brass is held firmly in place by an adjustable cast steel taper wedge.

This wedge has a taper of ¼ in. in 12 in., a corresponding taper being cut in the driving box. As soon as wear or driving box pound develops, the stud nuts are backed off, the taper wedge and crown brass removed, and the thin edges of the two sections planed off the required amount, depending upon the wear. The brass and wedge are re-applied, the latter being drawn up until the brass is once more held firmly in place and the brass fits the journal accurately. All of this work can be done without dropping the wheels or removing the driving box from the axle.



James Driving Box with Adjustable Brass

It will be observed that the studs are threaded and then welded into the driving box face as a precaution against their backing out. Two lugs on the brass assure its remaining in the proper position while the wedge is being tightened.

Michigan Central Train Control Approved

WASHINGTON, D. C.

INSTALLATIONS of the automatic train-stop (automanual) system of the General Railway Signal Company on portions of the Detroit, Middle and West divisions of the Michigan Central under the Interstate Commerce Commission's orders of June 13, 1922, and January 14, 1924, were approved as meeting the requirements of the commission's specifications and order, with exceptions, in reports by Division 1 of the Commission made public on October 22.

The first installation extends from West Detroit, Mich., to Jackson, 72.64 miles, with 100 locomotives equipped, and the second extends from Jackson, Mich., to Niles, 116.82 miles, with 99 locomotives equipped. The cost of the first installation, as reported by the carrier, covering roadside and locomotive equipment, was

$178,282, while the cost of the second was reported as $202,559.

Exceptions to Same

The exceptions are the same in both reports, as follows:

1. The reset contactor must be so located on all locomotives, or so constructed and installed as to require that the locomotive be brought to a stop after an automatic brake application before a release of the brakes can be effected. This was not the case on some of the locomotives found during the inspection.

2. Pusher and other locomotives operated backward in road service with the current of traffic must be equipped with the train-stop device for such movements.

3. (a) Non-equipped locomotives must not be operated in road service in train-stop territory unless double-headed behind a locomotive the train-stop equipment of which is in service.

(b) Locomotives must not be run in road service from terminals in train-stop territory with the device cut out unless double-headed behind a locomotive the train-stop equipment of which is in service.

(c) When necessary to operate locomotives through to terminals with the train-stop device cut out, account failure en-route, special protection must be provided.

The commission has granted a petition of the New York Central by relieving it from equipping certain specified locomotives with automatic train control devices for operation over automatic train control territory.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading during the week ended October 15 totaled 1,119,872 cars, an increase of 19,320 cars over the preceding week but a decrease of 82,908 cars from the corresponding week of last year. The decline from a year ago is accounted for principally by lighter loadings of coal and miscellaneous freight. Coal loadings amounted to 196,508 cars, as compared with 222,920 cars in the corresponding week of 1926, and loadings of miscellaneous freight amounted to 433,953 cars as compared with 461,556 cars. Livestock was the only commodity classification which showed a gain, and loadings in all districts were smaller than last year. The summary as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

WEEK ENDED SATURDAY, OCTOBER 15, 1927.

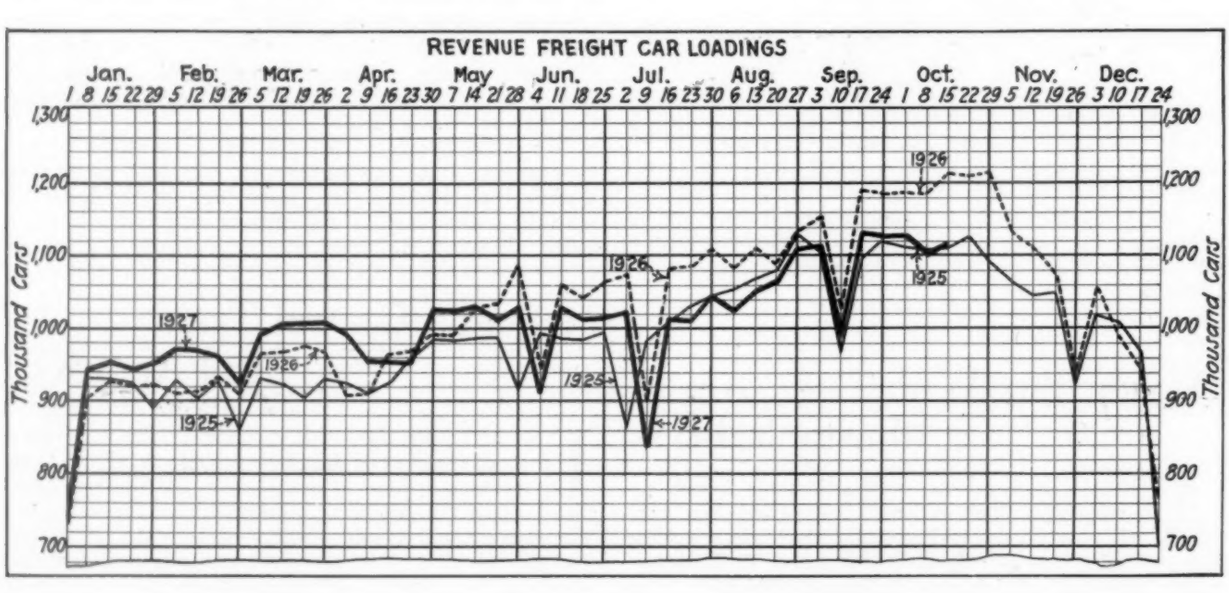
Districts	1927	1926	1925
Eastern	239,761	266,439	241,842
Allegheny	214,990	241,482	214,712
Pocahontas	59,496	62,549	57,839
Southern	161,189	170,281	161,598
Northwestern	173,856	187,574	174,673
Central Western	180,689	181,332	174,835
Southwestern	89,891	93,123	80,510
Total Western Districts	444,436	462,029	430,018
Total all roads	1,119,872	1,202,780	1,106,009
Commodities			
Grain and grain products	52,333	52,487	45,205
Live stock	40,776	40,751	43,872
Coal	196,508	222,920	186,446
Coke	9,555	13,011	13,343
Forest products	66,490	72,643	68,223
Ore	51,784	69,136	55,239
Mdse. L. C. L.	268,473	270,276	270,539
Miscellaneous	433,953	461,556	423,142
October 15	1,119,872	1,202,780	1,106,009
October 8	1,100,552	1,174,928	1,106,036
October 1	1,126,390	1,180,049	1,113,283
September 24	1,125,868	1,175,407	1,121,025
September 17	1,127,613	1,179,259	1,098,627
Cumulative total, 42 weeks	42,218,318	42,691,897	41,218,272

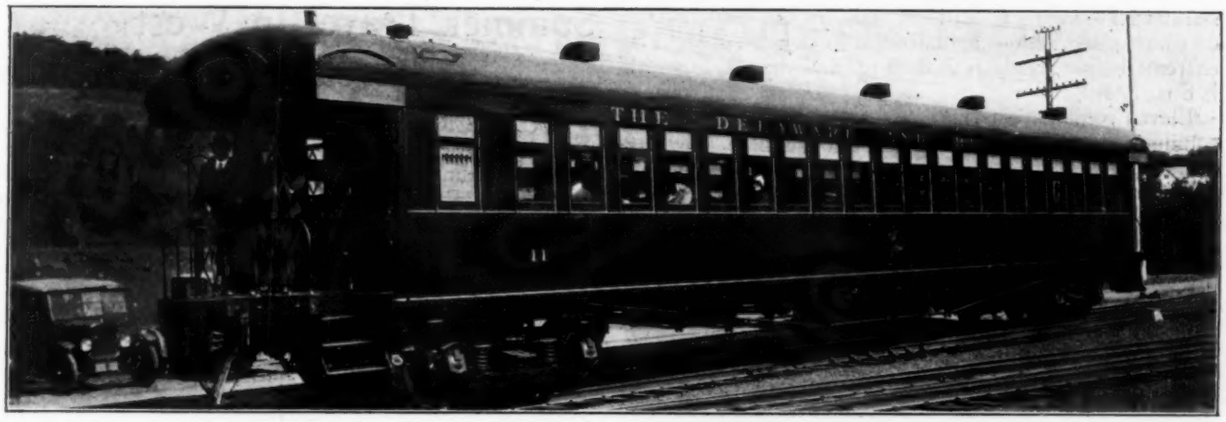
The freight car surplus for the period ended October 8 averaged 142,678, as compared with 135,059 cars for that ended September 30. The total included 42,264 coal cars, 76,647 box cars, 12,789 stock cars and 3,707 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended October 15 totalled 77,225 cars, an increase of 342 cars over the previous week and a decrease of 8,019 cars from the same week last year.

	Total for Canada			Cumulative totals to date	
Commodities	Oct. 15, 1927	Oct. 8, 1927	Oct. 16, 1926	1927	1926
Grain and grain products	15,260	16,066	22,943	306,597	325,494
Live stock	3,739	3,633	2,918	89,500	87,090
Coal	9,120	8,630	9,331	278,603	235,534
Coke	872	525	461	14,073	14,932
Lumber	3,783	3,946	3,872	156,215	150,435
Pulpwood	1,384	1,353	1,920	127,874	111,006
Pulp and paper	2,255	2,319	2,315	90,724	97,957
Other forest products	2,935	2,788	3,057	124,668	126,992
Ore	1,867	1,897	1,945	69,074	71,335
Merchandise, L. C. L.	18,381	18,418	17,974	705,316	670,449
Miscellaneous	17,629	17,368	18,508	611,390	584,674
Total cars loaded	77,225	76,883	85,244	2,574,034	2,475,998
Total cars received from Connections	37,833	38,331	37,365	1,547,426	1,530,442



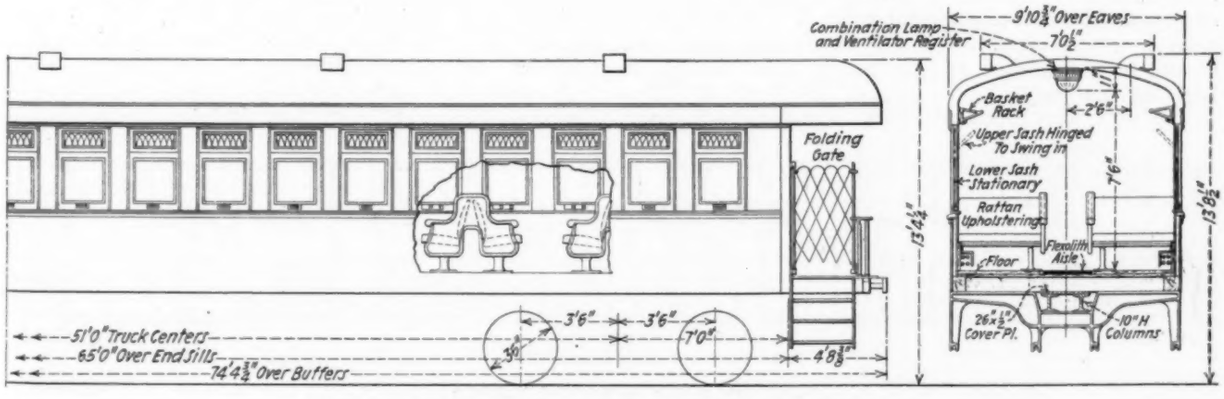


Suburban Car Recently Placed in Service by the Delaware & Hudson Between Wilkes-Barre, Pa., and Carbondale

D. & H. Remodels Suburban Equipment

Stationary double seats similar to those in sleeping car sections—Seating capacity for 82 persons

THE Delaware & Hudson recently placed four passenger cars in suburban service between Wilkes-Barre, Pa., and Carbondale, which contain a number of new and unusual features of construction. These cars, which were originally of all-wood construction, were remodeled at the Oneonta, N. Y., car shops to handle the commuter traffic between these two points, which are 34 miles apart. They are rebuilt with the modified turtle-back roof, which is now standard for the railroad, and have a length over the end sills of 65 ft. The length over the buffers is 74 ft. 4¾ in. Each car has seats for 82 persons, the average light weight being 105,000 lb. The overall height of these cars is 13 ft. 4¼ in. and the width over the eaves, 9 ft. 10¾ in.



Elevation and Cross-Section of the D. & H. Suburban Cars

Window Design Unusual

The interesting features in the reconstruction of these cars are the type of seats with which the cars are equipped and the unusual design of the windows. The seats, supplied by the Heywood-Wakefield Company, are similar in design to those commonly used in sleeping car sections. They are of double construction, built as a unit, back to back and are upholstered in rattan. Space is provided between the backs for luggage.

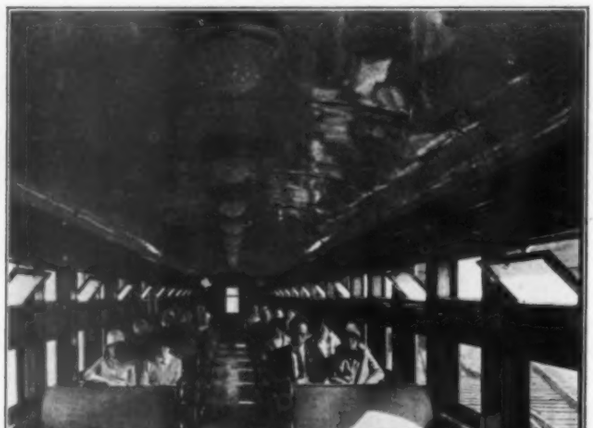
It will be observed from the drawings and illustrations that each window is provided with an upper and lower single sash. The upper sash has a pane of Gothic prism glass and is arranged to swing inward to admit fresh air. The lower sash, which cannot be raised, has a Pullman style slide ventilator in the bottom rail.

Interior Design and System of Ventilation

The interior of each car has a mahogany finish with white enameled bulkheads and headlining. Flexolith flooring is laid in the aisle the full length of the car. The original clerestory type roof was replaced with the

standard Delaware & Hudson roof, in the construction of which steel carlines and steel purlines were used. The extreme height inside is 7 ft. 6 in. and the inside width is 8 ft. 10 in.

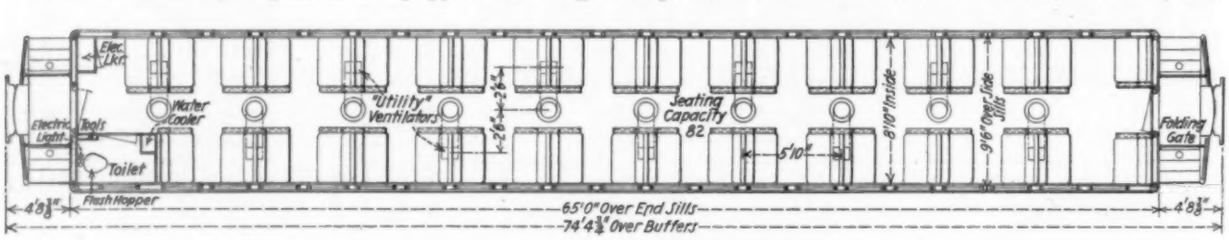
Eleven combination ventilator center lamps are spaced equidistantly along the center of the ceiling. They are connected with air ducts laid between the roof and ceiling which lead to Utility type exhaust ventilators located



Interior of the Delaware & Hudson Suburban Cars

on the roof of the car. This innovation in ventilation was developed by the car department of the Delaware & Hudson and is standard for the passenger equipment of that road. The heating system is the Vapor thermostat control arrangement. The electrical equipment and lamps were furnished by the Safety Car Heating & Lighting Company.

The cars have open platforms equipped with high folding safety gates. The steps are steel plates with Kass safety treads and the entire floor of the platform is covered with Kass safety matting.



Floor Plan of the Remodeled Suburban Cars

Underframe and Trucks

The trucks consist of Commonwealth cast steel frames, bolster and spring plank, 36-in. diameter steel wheels mounted on 5-in. by 9-in. journals, and Simplex type clasp brakes.

The underframe consists of two 10-in. H-beams reinforced with a top cover plate ½ in. by 26 in., Commonwealth combined platforms and double body bolsters, and Commonwealth steel needle beams.

Summer Travel In West Greater Than in 1926

SUMMER passenger traffic in the western territory this year has been generally heavier than last year, according to several roads operating out of Chicago. The Pacific coast reflected a greater increase in passenger traffic than any other section, including that to the Atlantic coast which has been slightly less than last year. California travel has been relatively the same as last year with possibly a small increase, while that to Florida has been considerably less, although it compares favorably with a similar period before the land boom.

National park traffic has shown a general increase of about five per cent, with the exception of that to Rocky Mountain National Park and points in Colorado which has been 20 per cent less than last year. The greatest increase this year was that to Grand Canyon, 10 per cent.

The outstanding characteristics of this year's travel has been the increase in the number of persons using tours. The Chicago, Burlington & Quincy reports that the number of persons taking its tours has increased 25 per cent while smaller increases have been experienced by other roads, including the Chicago & North Western, the Union Pacific and the Atchison, Topeka & Santa Fe. The number of persons using summer rate tickets, which includes points in British Columbia, Washington, Oregon and California, has also been greater this year than ever before.

A total of 5,313 passengers went to Yellowstone National Park through the Chicago, Milwaukee & St. Paul's Gallatin Gateway which the road opened this year. This, according to W. B. Dixon, general passenger agent, breaks all records for the first season's business through any new national park entrance. Another interesting feature of this travel is that 75 per cent came from Chicago and points east.

While rail travel to the national parks increased five per cent, the number of people traveling by automobiles increased nine per cent. The report of the director of national park service shows that in 1919, 97,721 private automobiles entered the parks, while in 1925 the number had increased to 368,212 and in 1926 to 406,248.

A study of 10 parks including Yellowstone, Yosemite, Sequoia, General Grant, Mt. Rainier, Crater Lake, Glacier, Rocky Mountain, Grand Canyon and Zion shows 1,416,162 people entering in 1926, of which 128,942 or 9.1 per cent entered by rail; 937,544 or 66.2 per cent by private automobiles; 61,967 or 4.3 per cent by stages, 12,709 or 0.9 per cent on foot; 1,429 or 0.1 per cent by boat and 513 or 0.03 per cent by motor cycle. At the three parks, Yellowstone, Yosemite and Grand Canyon, where visitors can enter by rail, 40,960, 20,546 and 67,436 persons respectively used this method of transportation, while those who came by private automobiles totaled 141,449, 243,461 and 71,580 respectively. In other words, 22.4 per cent, 7.7 per cent and 4.8 per cent or an average of 17.7 per cent entered by rail.

Utility Commissioners Hold Meeting at Dallas

Hoch-Smith resolution and state-federal co-operation leading subjects of discussion

THE public service commissioners of 38 states were represented at a busy four-day convention of the National Association of State Railroad and Utilities Commissioners which was held at the Baker hotel, Dallas, Texas, on October 18-21 inclusive. About 180 members and guests were in attendance. As was the case at the last previous convention, the program was an exceedingly full one, but by close attention to the business at hand and long sessions, it was found possible to adhere reasonably close to the schedule.

As would be expected in an organization of this kind, highly divergent views were expressed. The address of the president, John F. Shaughnessy of the Nevada commission, was devoted in considerable measure to a plan for the relief of agriculture. It proposed a flat charge of 10 cents per ton on all freight traffic for the purpose of providing sufficient additional revenue which, together with the revenue received from the Pullman surcharge, should in his opinion provide a fund adequate to compensate the carriers for a 25 per cent reduction in rates on cotton, grain and live stock. In contrast with this proposal was an address on the Valuation of Properties of Public Utilities by William A. Prendergast, chairman of the New York Public Service Commission which comprised an exhaustive analysis of the cost of reproduction theory leading to the conclusion that its use as a determining factor in present value is fundamentally sound.

Senator Mayfield Denounces Section 15-a

Earle B. Mayfield, United States Senator from Texas, delivered an oration on Section 15-a of the Transportation Act, in which he objected not only to all of its provisions but also to the manner of its administration by the Interstate Commerce Commission. The recapture clause came in for particular criticism, the more prosperous roads being accused of gross extravagance in efforts to avoid payments under its provisions. In support of this he cited the marked increase in expenditures for maintenance of way and equipment in 1923, over those for 1910, 1911 and 1912, but without any explanation for his selection of these particular years for purposes of comparison.

Senator Mayfield endorsed the motives which had prompted the adoption of the Hoch-Smith resolution, but said that he was not surprised that it had produced no tangible results. The commission was not to be blamed for this, but it was at fault for a failure to apprise Congress of the fact that the provisions of the resolution would be impotent so long as Section 15-a remained in effect.

By an odd coincidence the senator from Texas was followed on the program by H. G. Taylor, formerly president of the association and now manager of the public relations section of the Car Service Bureau, who prefaced his remarks by reading a resolution adopted by the association in 1916 pointing to the enormous losses suffered by the shippers at that time as a consequence of a large and protracted car shortage. He also recalled the unavailing efforts of a committee that had been appointed for the purpose of securing relief. "During 1926," he continued, "with actually less cars in service, there was no car shortage at any time, in spite of the fact that the railroads handled an unprecedented volume of freight." He also cited statistics to demonstrate the marked increase in the efficiency of the railroads which has made this profound improvement in service possible, but pointed also to the part played by shippers in their co-operation through the agency of the regional advisory boards.

Chairman Esch Talks on "Age of Speed"

The "Age of Speed" was the subject of an informal but eloquent address by John J. Esch, chairman of the Interstate Commerce Commission, in which he painted a vivid picture of the struggle of the past century for the elimination of time and space in the business and social intercourse of the civilized world. He made detailed references to the exhibits at the Halethorp exposition of the Baltimore & Ohio by way of illustrating his story. "Better tracks, better locomotives and better cars," he added, "have made better service possible, as a result of which there is less prejudice and less hatred of the railroads at this time than in many years passed." The "autocrat at the breakfast table" realizes that he owes the quality of the oranges he eats to improved handling of perishables. In commenting on the advent of the automobile in the "Age of Speed," he questioned whether the motor vehicle had been responsible for an actual reduction in the total revenues of the railroads, because of the compensating effect of the volume of freight business created by the automobile and allied industries.

Addresses by executives of public service corporations had an important place on the program, among those appearing being John A. Wise, president, Pennsylvania Power & Light Company; Walter S. Gifford, president, American Telegraph & Telephone Company; and Frank A. Farrar, vice-president, Electric Bond & Share Company. An address by General W. W. Atterbury, president of the Pennsylvania is abstracted briefly elsewhere in these pages.

The election of officers, resulted in the advancement of Henry G. Wells, of the Massachusetts Department of Utilities, from first vice-president to president and of Lewis E. Gettle, chairman of the Wisconsin Railroad Commission, from second vice-president to first vice-president. Charles Webster, chairman of the Iowa Board of Railroad Commissioners, was elected second vice-president. John E. Benton, general solicitor, James B. Walker, secretary, and Clyde S. Bailey, assistant secretary, were re-elected. After considerable discussion Glacier National Park, Mont., was selected as the place for the next convention, to be held in the week of September 10, 1928. Following the close of the convention, a party of 125 members and guests

made a trip by special train to the Rio Grande valley over the Missouri-Kansas-Texas, the Southern Pacific, the Gulf Coast Lines and the Gulf Colorado & Sante Fe, returning to Dallas on Tuesday, October 25.

Report on Proposed Changes in Accounts

The Committee on Statistics and Accounts of Railroad Companies reported on the proposed changes in the classification of operating expense accounts, stating that in its opinion Tentative Proposal No. 1 should be abandoned because it would meet with too much opposition and that Tentative Proposal No. 2 should be supported and adopted. It is the opinion of the committee, "that much good can be accomplished and much time and expense saved through the adoption of a classification of accounts that will permit reasonably accurate cost studies and anaylses to be made."

Similar considerations are seen in the report of the Special Committee on Classification of Accounts, which comprised a statement with respect to its interest in proposed changes designed to provide more complete information as to the movement of freight in order that such data may be made of more specific value in the consideration of intrastate rates. What the committee has in mind is indicated by the following excerpt from its report:

It is proposed that there be a separation not only by state lines but that within states partly in one rate territory and partly in another, the information should be furnished with reference to such rate territory division within such states. This would involve a division in the states of Florida, Michigan, North Dakota, South Dakota, Texas, Colorado and Louisiana.

A matter of greater importance with reference to value of statistics segregated by state lines is that some practical formula should be evolved and adopted of segregating expenses of operation. Statistics furnished state commissions, at the present time, are of little value because they do not conform to any accepted standard and, in any contested proceeding, the carriers succeed in discrediting their own statistical reports.

A resolution addressed to the Interstate Commerce Commission calling attention to the particular advantages of this proposal was adopted.

Opposing Views on Government Ownership

Two reports were presented on Public Ownership and Operation. One was submitted as the report of the committee assigned to that subject and signed by the chairman, H. H. Corey of Oregon and a majority of the membership of the committee. The other comprised a separate statement signed by Joseph B. Eastman of the Interstate Commerce Commission, who was also a member of the committee.

The committee report comprised a frank endorsement of private ownership and operation under adequate regulation and concluded with the following paragraph:

In private enterprises promises for efficient service can be made and an incentive to active and successful effort can be maintained. A competent employee is recognized and rewarded and promotion is sure and easy under private operations. Throughout the business world the best service is rendered when there is hope of reward, and the best commodity is produced when there is hope of profit. Where reward and profit are lacking, service and commodity depreciate in value. The rewards of public life are dubious and the profits are not forthcoming by honest means. The losses due to extravagance and misdirected efforts of public operations of utilities will represent enormous dividends on properly applied capital and generally a plant can be built and operated at less cost by private capital than by public funds. All of these things we believe, go to make public operations of public utilities undesirable.

Commissioner Eastman's statement embodied an analysis of the relative merits of private and public ownership which, in principle at least, favored public ownership. "The question is peculiarly one," he states, "in which prejudice is likely to play a part, prejudice which may be and usually is quite unconscious. Aside from religion, there is perhaps nothing that so excites prejudice as the fear of being separated from the opportunity for profit."

While favoring public ownership for new enterprises he approaches its application to existing properties with an appreciation of some practical obstacles, as indicated by the following:

Until the courts have more definitely indicated their views upon the valuation question, such a step would be attended by the danger that it would involve the payment of a price, either for the physical properties or for the stocks of the private corporations, so out of reason that it would condemn the new policy to comparative failure for some years to come.

Discuss State-Federal Co-operation

Dissapointment in the results of a practical application of the theory of co-operation between the Interstate Commerce Commission and the state commissions in dealing with the rate cases affecting intrastate rates was expressed by a number of speakers at the Convention. In the opinion of John E. Benton, general solicitor of the association, the co-operation plan was purely an expedient to overcome what he deems to be a vital defect in the Transportation Act. Under Section 13, orders issued by the Interstate Commerce Commission in cases involving a conflict between interstate and intrastate rates result in a "frozen condition of intrastate rates," which in his opinion cannot continue indefinitely. He advocated an amendment of the law which would restore to the state commissions prerogatives "which are rightly theirs."

President Shaughnessy Reviews Difficulties

This subject was covered in greater detail in the address of President John F. Shaughnessy, who pointed to some of the difficulties experienced by the state commissions in their efforts to participate in hearings before the I. C. C. Portions of his address relating to this problem are in part as follows:

If regulation is to be the effective agency for which it is designed it must, for the future, be kept close to the people and, in fact, closer than it has been in the past insofar as railroad activities are concerned. In this branch of public utility regulation, the federal government has seen fit to occupy almost the entire field. There seemingly is no justification, other than expediency, for this war plan of centralization which has been maintained from a jurisdictional standpoint over the control and regulation of the railroads. It has, for the first time in the history of this nation, placed in the hands of the railroads para-

mount power and jurisdiction to nullify every worth while regulation theretofore executed by our commonwealths. Thereafter a co-operative agreement, pursuant to Section 13 of the Interstate Commerce Act, was executed and has been in the process of growth since that time. It provides for the joint hearing of rate and service cases, involving two or more states, a group, a district, or the United States as a whole. This plan has been working with more or less success. I think the states have demonstrated unqualifiedly their disposition to do their full share but the practical effect of it has been to nullify almost everything in the way of an intrastate regulation of rates and other necessary police regulations. State regulatory initiative in the railroad field has been destroyed.

Efforts have been made by this association to secure modification of the Transportation Act, but without success. The railroads and representatives of the industrial, financial and commercial organizations have opposed on the slogan of a "Hands off policy, give the transportation act a fair trial."

The agreement covering co-operation between state and federal commissions in rate cases involving both interstate and intrastate rates implies the making of common records, the cost of which has become a heavy burden upon many of the state commissions. The Interstate Commerce Commission advises that its appropriation is so short that we cannot expect relief in that direction. Obviously if co-operative procedure in group-wide and district-wide cases is to be carried forward successfully, provision must be made to care for this cost.

If co-operation between state and federal commission in district-wide cases is to be made the success it should be, manifestly each commission which has put in issue its intrastate rates should be in possession of a copy of the transcripts promptly covering the common record which is being made, otherwise the states will be unable to function in the matter of briefing and preparing for arguments.

Committee Report on Co-operation

That co-operation is a necessity is the view of the Committee on Co-operation Between Federal and State Commissions, presented by Paul A. Walker of the Oklahoma commission. "It is difficult to see," says the committee's report, "how matters of mutual concern, involving both federal and state rights and questions, can be properly handled without active co-operation between the Interstate Commerce Commission and the state commissions." The committee, however pointed to a pertinent question frequently raised by the presence of a state commissioner at a federal hearing.

A commissioner must often find himself in an apparently dual position. He may either be an advocate on the part of his state in proceedings before the Interstate Commerce Commission or he may sit in a quasi-judicial position where he is a member of a co-operating committee investigating matters of vital concern, to his state. Good taste and sound judgment will dictate that he take either one position or the other. The following of the spirit of co-operation will avoid any difficulties and disrespect.

The lack of a clear definition of the relative powers of the federal and state commissions in connection with applications for the establishment of union stations was also touched upon, the contention being that the decision in the Los Angeles case did not settle the jurisdictional question. On this point the report quoted a letter addressed by the chairman to Chairman Esch, of the I. C. C., from which the following is abstracted:

To the extent that your commission has power in these matters the power of state commissions must necessarily be circumscribed; but the class of cases in which state commissions can still properly act, and to the extent to which they may act, and the extent of the power of your commission, and the manner in which the exercise of that power may be invoked, are far from clear.

In an address by Albert Reed of the National Industrial Traffic League, attention was directed to the fact that the right of the Texas commission to act jointly with the I. C. C. has been attacked in the courts. In his opinion there is need of legislation empowering state regulatory authorities to co-operate with federal commission in cases affecting both interstate and intrastate rates.

Discussion on the subject of co-operation and the difficulties in which the state commissions have been involved was crystalized by the adoption of two resolutions which are reproduced in part below:

WHEREAS, the hearing and disposition of proceedings under the co-operative plan make it necessary that each co-operating state commission shall be supplied with a copy of the transcript of evidence, and entail other substantial expenses upon co-operating commissions, which appropriations made for the uses of such state commissions in the performance of their duties within their respective states do not enable them to meet.

THEREFORE, BE IT RESOLVED: That provision should be made by Congress to meet the aforesaid costs, incident to co-operation between the state and federal commissions, by an appropriation of adequate amount to be available for use therefor through, and under the direction of the Interstate Commerce Commission.

WHEREAS, the necessity for interstate travel, which has greatly increased since the enactment of the Transportation Act, and since the development of co-operation between state and federal commissions, has placed a heavy burden upon the state commissions, which some of them are unable to meet, to the hinderance of the fullest measure of co-operation:

THEREFORE BE IT RESOLVED: That this association recommends such amendment to Paragraph 7, Section 1 of the Interstate Commerce Act as shall include among the classes excepted from the inhibitions of that section, members of state regulatory commissions and their assistants while traveling on official business.

See Definite Advantage in Hoch-Smith Resolution

A sentiment of hearty support for the Hoch-Smith resolution and a keen interest in the means through which it is to be made effective was apparent in the discussions. The attitude is well summarized in the following paragraphs taken from the report of the committee on Railroad Rates, presented by Hugh H. Williams of the New Mexico commission.

The principles laid down by Congress in the Hoch-Smith Resolution for the commission's guidance in rate-making are found in the second paragraph of the resolution. In removing existing discriminations, the commission is commanded to "give due regard, among other factors, to the general and comparative levels in market value of the various classes and kinds of commodities as indicated over a reasonable period of years, to a natural and proper development of the country as a whole, and to the maintenance of an adequate system of transportation."

While this command has immediate reference to the removal of present discrimination, nevertheless, when the resoluton is read as a whole, as it must be for its proper interpretation, it seems apparent that they are principles which underlie the rate-making policy announced in the first paragraph of the resolution, and that they constitute a mandate intended to be permanent.

For the purpose of executing the terms of the resolution, the Interstate Commerce Commission on March 12, 1925 instituted its Rate Structure Investigation No. 17,000; and while this investigation has, since its institution, been continuously prosecuted, it must be admitted that the relief intended by the resolution to be obtained for agriculture has been disappointingly slow of accomplishment. No order has yet been made in this general proceeding requiring the reduction of any rates. The explanation of this is doubtless to be found in the vastness of the task assigned to the commission, and in the thoroughness of the investigation which the commission is making.

One great advantage of this procedure lies in the fact that it places before the commission for its consideration, and for the support of any order which it may make, the vast amount of information which from the time of its institution has been accumulated in the No. 17,000 record.

Not only are all interstate rates covered by the original order of investigation in No. 17,000, but all intrastate rates also. In this respect the order is not broader than the letter of the resolution would seem to give warrant for, especially when consideration is given to the emphasis laid therein upon the expeditious removal of all discriminations.

The investigation, therefore, so far as intrastate rates are concerned, is the full equivalent of a Section-13 proceeding, and in it the commission can doubtless make orders prescribing intrastate rates, so far as the same may be necessary for the removal of discriminations.

From this brief review it will be seen that the Hoch-Smith

resolution provides a method of procedure whereunder, as it finds the time to take up for study and revision the rates affecting any commodity in any section, the Interstate Commerce Commission may proceed expeditiously to deal with them in a constructive manner, upon a very broad and comprehensive record,—which is almost all-inclusive in the information it contains,—exercising at a single time any of its rate-making powers which the situation may demand.

While it is true that in the Rate Structure Investigation none of the sub-investigations (except Part 1) has yet been concluded, and while no order reducing rates on any products of agriculture has yet been made therein, it is not true that the resolution remains yet without concrete results. While the actual reduction of rates on the products of agriculture has not gone far, the Hoch-Smith resolution has nevertheless had substantial effect in the way of staying advances which otherwise might have been made. Furthermore, as we have seen, the commission has instituted, and is carrying on, investigations affecting some of the principal farm products, over widely extended areas of the country, which may be expected to be ripe for decision within a year or less.

We have also seen that, in the cases which it has decided, the commision has placed an interpretation upon the Hoch-Smith Resolution which would seem to insure some substantial relief to agriculture.

In endorsement of the views expressed in this report the association adopted a resolution opposing efforts for the repeal of the Hoch-Smith resolution or any ammendments thereof.

Discuss the Highway Crossing Hazard

That highway crossing protection continues to be a matter of greater concern to the state commissioners than automatic train control is evident from the report of the Committee on Safety of Railroad Operation which re-iterated the stand of previous committees on this subject. "In 1925," said the report, which was presented by Andrew R. McDonald of Wisconsin, "2,206 persons were killed and 6,555 were injured at grade crossings or about 18 times as many killed and 4 times as many injured at highway crossings as in collisions of trains. In view of this the committee recommends that a study be made to determine, if possible, whether or not the expenditure of money necessary to install train control on additional mileage of railroads might better be spent on the elimination of grade crossings.

"The cost of installing train control, according to the figures given above, is in the neighborhood of $3,000 per mile, including the installation of the equipment in the locomotives. It is possible that the expenditure of money could be more advantageously made in the interests of safety by extending the automatic block signal rather than by further installation of automatic train control."

However, the Committee on Grade Crossings was more inclined to lay stress on the mental attitude of the auto driver as a point of approach to this problem and presented its views in a unique way as illustrated by the following excerpts from the report:

The state furnishes: hospitals for insane, tubercular, feebleminded, epileptic persons, schools for incorrigibles, penal farms, reformatories, prisons and the electric chair. The state also provides: agricultural agents, dairy experts, veterinarians, parks, hard surface highways, state highway police and courts and state attorneys for the trial of offenders.

The state *does not provide*: a school to teach the value of a human life, the courtesy of the highway, that half of the road belongs to the other driver, that a grade crossing is less hazardous behind a railroad train than in front of it, the danger of misjudging the speed of the approaching train, that living expense is much less than funeral expense, that there is need of co-operation at grade crossings, that the reckless driver furnishes the worst example rather than the greatest incentive, that the pedestrian has as much lawful right in his proper use of the public highway as has the automobile driver, that the life of the person in the path of the moving automobile is as precious to his family as is the life of the automobile driver to his family, or that the failure of the human element at grade crossings results in the terrible toll of grade crossing accidents.

The same delinquency of men that causes accidents at points other than at grade crossings causes accidents at such crossings. The needful thing, therefore, is to correct this delinquency.

The committee believes that it is the obligation and duty of the state to do this; that the mental attitude of vehicle drivers should be corrected; that such correction should be made by the state before any citizen shall be permitted to drive a motor vehicle on the public highway; and that the state should issue a license as evidence that such training had been afforded and such approval had been given. It believes that this association should strive to have each state undertake this task according to such scheme of encouragement and education as each state may find most efficacious within its own jurisdiction. The effort should be uniform; the details should fit the plans of each state in other educational and police details.

The place and time to promote safety at grade crossings is at the home of the automobile driver and before he starts his engine. His mental attitude should be right. Safety by observance is far superior to safety by enforcement.

General Atterbury Addresses Convention

General W. W. Atterbury, president of the Pennsylvania, who appeared before the convention on Tuesday afteroon reviewed the effects of the Transportation Act, pointing in particular to the feeling of greater security it had given the managements as a result of which they have expended enormous sums for improvements. He also discussed valuation and consolidation, the following being excerpts from the portions of his address which dealt with these subjects:

The determination of railroad values, in my opinion, is not so important now as it was thought to be when the valuation work was started. We have but one real question: Are we able to pay to the investors in our property a reasonable interest upon the money they have invested to serve the public; are we able to earn a surplus over that fair return; and can we expect to continue to earn such a surplus as will justify prospective investors in putting their money into new and improved facilities in preference to investing their money in other home enterprises or in foreign securities?

Whether the valuation is put at one figure and the return earned upon that valuation is low, or whether the valuation is put at a lower figure and the return earned is high, is, after all, but a mathematical equation. When legislators, commissioners and railroad officers can look into one another's eyes and actually realize that their fundamental purpose in this situation is identical, we will be able to brush aside much of the theory and many of the disagreements which still confront us. Both of us will see that such fair returns cannot be realized or maintained without protecting railroad rates from unwise reductions or from becoming the football of unsound economic theories.

There has been evident in several recent instances a tendency on the part of industries to disregard, in their own special interest, the sound theory that rates should be based upon a consideration of the cost to the railroads of performing service and upon the value to the industries of the service performed. It is unsound economically to expect the regulation of rates to act as a leaven of prosperity as between different industries and as between different elements in the same industry. Yet that is essentially the principle advocated and adopted in respect of several recent pleas for special treatment of industries suffering from depression brought on not by rates but by causes far removed from transportation charges and largely inherent in the industries themselves. It is not in the public interest nor in the interest of business generally, to subject the regulatory commissions to the unreasonable influence and coercion which this point of view represents.

Another important problem before us today is that of consolidation. Here again conditions of mutual confidence are essential if the problem is to be worked out constructively. In my opinion, the great necessity in this situation is for the railroads themselves to unite upon a program of action which will be in the large common interest. There is every reason to believe that even though we are going to have a much smaller number of railroad corporations, we must, by the same token, build up the local authorities of our railroads throughout the country so that they may at all times be responsive to local needs and be actively in touch with the people most immediately affected. If this principle is accepted and acted upon it seems to me there can be much greater co-operation among railroad officers in the working out of this problem and the regulating authority can co-operate with us more actively.

The fact that the state commissioners meet as you are meeting here shows a disposition among the states to co-operate with one another and with the Interstate Commerce Commission to the end that our transportation service shall in the fullest sense be a national service. You have very definite functions in regulating of the rates and service within your particular territories, but the thought I would like especially to suggest to you is the importance of remembering that you have a specific interest not merely in the service under your immediate jurisdiction, but also that you and your constituents have an interest in the service throughout the country.

Motor Transport Reports

The report of the committee on motor vehicle transportation as well as a paper on motor vehicle insurance, by Henry S. Ives, vice-president of the Casualty Information Clearing House, Chicago, will be published in abstract in the Motor Transport Section of the *Railway Age*, which will appear with the issue of November 26.

Construction of Line Approved for Limited Use

WASHINGTON, D. C.

THE Interstate Commerce Commission has issued a decision on an application filed by the Gulf, Colorado & Santa Fe approving the construction of an extension into the West Dallas, Tex., industrial district about eight miles, but, in order to reduce the amount of traffic and revenue to be diverted from the Texas & Pacific, which already serves the district, with a condition that the new route shall not be used "except where such use will clearly result in increased efficiency from the transportation standpoint."

Proposed Line

The proposed line would extend from Hale, Tex., a point on the G. C. & S. F. 7.4 miles southwest of the Union Station in Dallas, in a northwesterly, northerly and northeasterly direction about eight miles, reaching six industries now served by the Texas & Pacific and paralleling its line for about three miles. Representatives of the six industries testified in support of the application, urging the benefits to be expected from competitive service, while the Texas & Pacific opposed it on the ground that the line is not required and that it would divert revenue from the Texas & Pacific which the public interest requires that it continue to receive.

The report by Division 4 of the commission says in part:

As already stated, the construction and operation of the proposed extension would afford substantial transportation benefits in the reduction of distance, the substitution of single-line for joint-line service, and the avoidance of terminals which are becoming increasingly congested. The new line would also give the shippers in the West Dallas district direct access to an additional supply of equipment, and the construction of the line would increase the availability of considerable territory for industrial development in a district which will eventually be in demand for that purpose. Question was raised as to the ability of the applicant and the Texas & Pacific to serve the industries without interference, but it must be assumed that the shippers desiring the additional service would cooperate in giving proper access to their traffic.

The argument that the West Dallas industries should have the benefit of competitive service must be weighed with allowance for the evils inherent in the extension of competition of the character here in contemplation. While competition is a stimulus to more and better service on the part of the carriers, it is also a fruitful source of discrimination and prejudice. In times of car shortage the natural tendency of carriers is to supply the shippers who have access to a competing line, often at the expense of shippers not so fortunately situated. Such preferences are evidenced not only in the matter of car supply, but in all departments and in every incident of service, extending even to the courtesy of employees. It is obviously impossible to provide competitive service at all points or to all shippers. Of 1,386 industries on the Texas Pacific at competitive points, only 320 have direct service by another line. The number of industries at local points is not shown. All of these industries are equally entitled to service in proportion to their needs.

Competitive Traffic

The strife for competitive traffic may lead not only to discrimination but to uneconomical and wasteful service. Reference has been made to the proposal of the applicant to route traffic between West Dallas and points on the Panhandle & Santa Fe by way of the extension and its own line, involving an excess haul of about 172 miles as compared with the present route by way of the Texas & Pacific and Sweetwater. The record also cites an instance of a route of actual movement from Amarillo, Tex., to Shreveport, La., by way of the Santa Fe lines and the Louisiana Railway and Navigation Company's line, which is about 873 miles long as against the short-line distance of about 560 miles over the Fort Worth & Denver City and the Texas & Pacific. It is difficult to believe that the longer routes can be justified on the ground of economy or expedition. While the route last described is not involved in this proceeding, it is illustrative of a practice that should not be encouraged. Although Congress in the transportation act, 1920, has recognized the value of competition, it has nowhere indicated its approval of competition at the cost of unnecessary facilities or service.

Weighing the probable effects of the proposed construction in their relation to the public interest, the application will be granted but with the proviso that the new route shall not be used except where such use will clearly result in increased efficiency from the transportation standpoint. Such a limitation will reduce materially the amount of traffic and revenue that would otherwise be diverted from the Texas & Pacific. The record is inadequate for a finding as to all of the routes which would meet the test here proposed, but it is probable that the rule would exclude all traffic moving between the West Dallas district and territory north of Fort Worth and west or north of Sweetwater. Doubtless numerous instances may be cited of routes apparently more abnormal than these, but their existence is not a valid argument in this case. The record will be held open to permit a definite determination of the routes or territories to be covered by the proviso, through conference or further hearing. The applicant and the Texas & Pacific will be expected to confer immediately with a view to the determination of the traffic that will be affected by this condition and the designation thereof in tariffs, and to advise us within 60 days whether or not a further hearing is desired upon that matter. The issuance of a certificate will be deferred pending such determination.

Conditions

The authorization will be subject to the further condition that, upon the construction or acquisition by the Texas & Pacific of a proper connection with the extension, the applicant shall switch cars for that company between such connection and any industries that may be established on the extension, at rates agreed upon or established by proper authority, where, in the interest of transportation efficiency, the traffic should be routed over the Texas & Pacific.

The State of Texas, through its attorney General, has intervened in favor of the application, urging that it be granted unconditionally. It supports the applicant's contention that the proposed restriction of routing would be in conflict with the authority of the State in the regulation of intrastate traffic. We are of the opinion, however, that such a condition, imposed pursuant to the authority conferred in paragraph (20) of section 1 of the interstate commerce act, does not exceed our authority particularly as it has in view the conservation of the financial resources of interstate carriers.

Railway Supply Officers Discuss Buyers' Market

New measure of cost and more intelligence in handling material urged at New York Railroad Club meeting

The Storekeeper's Records are Aids in Purchasing

A "PURCHASES and Stores Night" was observed by the New York Railroad Club on Friday evening, October 21, at which the problems of securing the materials and supplies which a railway needs, including those brought about by a buyers' market, were outlined by spokesmen in this field. W. G. Besler, chairman of the board of the Central Railroad of New Jersey, and the executive member of the board of directors of the American Railway Association related to Division VI—Purchases and Stores—emphasized the importance of the purchases and stores work at this meeting and told of the rapid growth of Division VI of the American Railway Association and the effective work which it is doing. C. E. Walsh, purchasing agent of the Pennsylvania then outlined some of the problems of the purchasing department and dwelt particularly upon the relations between the buyer and seller, following which A. L. Sorensen, manager of stores, Erie, in speaking of the problems of the stores department, outlined several of the major problems confronting that department today, and particularly stressed the importance of intelligent co-operation between the supply and using departments. Abstracts of the addresses of Messrs. Walsh and Sorensen follow:

The Railroad Purchasing Agent

By C. E. Walsh

Purchasing Agent, Pennsylvania Railroad

A railroad purchasing agent is the connecting link between the stores department and producers of the articles and materials which the railroads need. Our problems with the seller are colored at present by a buyers' market. Many things have contributed to this. Our own industries have large capacities, so large that they may still be greater than the demands of the railroads. The railroads are making extraordinarily prompt and reliable deliveries of materials to destinations, in both small and large quantities. The result has brought about "hand to mouth" buying by the railroads.

In a buyers' market, prices are supposed to be easily handled, and some may think that problem has entirely disappeared from the purchasing agent's horizon. A buyers' market brings lower total costs to the buyer, but it creates as many and probably more problems than it removes. It brings about a new price structure, difficulties of distribution or apportionment of business and a buyers' market does not exist forever.

Centralized buying, which is the practice on many railroads, requires an intimate acquaintanceship with all the parts of the railroad where material is used and knowledge of the markets over all the territory, because various factors, for instance, the question whether or not the volume of traffic moves over the railroad in one direction or another, influence the choice of the locality to receive the orders for the storehouse to be served. Again there is the old question of whether a railroad should purchase on its own line, or from manufacturers and dealers situated on other railroads. Freight rates must be considered, for they affect the charges for delivery, which must be added to what the railroad actually pays the seller for the materials. Without the knowledge of the delivery cost of materials, a purchasing agent can go far astray in the conduct of the business and, whether he manages the deliveries or some one else does it, the purchasing agent has a responsibility of service up to the actual arrival of the purchased material at its place on the road which he cannot escape.

The purchasing agent whose railroad lies in a manufacturing or producing territory is often in a more uncomfortable position than the agent of a road not so favored. He meets "highpowered salesmanship," and is troubled not so much where to buy as how to equalize the claims of all firms seeking a part of the railroad company's business. Selection among sellers without loss of friendly relations is a problem.

The purchasing agent also has the problem of watching his costs of operation. The office organization must be studied so that it does not become weak in power. At the same time, overzealousness in business methods must be guarded against to avoid more operations than are actually necessary. In large purchasing operations,

where many men are frequently involved in settling a question, more work and incidental expense can easily arise from super-carefulness than the result may be worth. In these days of big business and modern methods, and close margins of profits, purchasing agents have an excellent opportunity to include themselves with other offers of a railroad who are all working to get the best results.

Relation to Store Department

One of the purchasing agent's greatest difficulties is adjusting his activities to the storekeeper's efforts to regulate the rate of receipt of his materials, in order to control his stock and at the same time render a satisfactory service to the users. The best systems devised do not seem to possess the faculty of covering the immediate future.

The extent to which reclamation of worn materials and scrap should be carried and what new materials should be manufactured in railroad shops often raise questions within the organization and between the railroad and manufacturers. This influences the quantity of purchases to be made and very often necessitates a fine adjustment between the purchasing and stores departments calling for close studies of reclamation costs in their relation to the prices of new material.

The purchasing agent should know the factories from which the purchases come, he should understand the method of manufacturing these products, he ought to know the origin of the raw materials which go into them, and he ought to know the managers of the business, as well as the sales representatives. He should also inform himself of the volume of business done by the firms with which he deals, and, indeed, of all the firms which are located on his railroad and in competitive territory. He can wisely extend his study to include knowledge on how that volume of business moves to its markets. In short, he should be informed upon matters of every kind connected with materials and supplies and their acquisition, that will place him in a position to influence the general policy and forward course of his railroad.

Growing Importance of Purchasing Agents

The growing knowledge on the part of our managements of how vital this branch of railroad operation is, and what its possibilities are, has raised the purchasing agent from a getter of prices, a lister of quotations and the issuer of purchase orders, to the level where the intricacies and complications of real modern day business are at play.

The purchasing agent has much to aid him, foremost among his helps being the storekeeper with his modern methods of budgets put alongside of the purchasing agent's running record of commitments, shipments, debits and price tendencies, volume of commercial production, etc. Purchasing agents of industries which manufacture the materials of commerce are also aids. These men have many of the same problems and while often solving them from a different point of view there is much to be gained by watching their progress.

A measure which the railroad purchasing agent can use on his own performance is hard to find, but he must be able to know how he is serving his storekeeper, how good a return he is getting for his expenditure of his railroad's money, and how well he is advancing his company's welfare.

Lay Cards on Table

Because he is the employee of a semi-public institution the railroad purchasing agent has to study salesmanship from the objective point of view, but the manner in which so many representatives of business houses conduct themselves is admirable, especially in times like these, when the difficulties of a buyers' market surround them. They are cordial and helpful under all circumstances and the purchasing agent should endeavor to get the best out of a meeting with them as well as to show the railroads' situation clearly by "laying the cards on the table."

Problems of the Stores Department

By A. L. Sorensen
Manager of Stores, Erie Railroad

The carrying charges on the railroad's material investment, including interest at 6 per cent, depreciation, obsolescence, taxes, and insurance is easily 15 per cent or equal to about $75,000,000. Material and supply expenses absorb about 29 cents of every revenue dollar earned by the railroads.

Materials should, wherever practicable, be purchased to a definite specification and tests made thereof before final acceptance.

The supply department of a railroad is a department of service and is only as good as the service rendered the owners, measured by turnover, and the using departments by meeting their requirements. Of vital necessity to economic results in the supply department is a willing, intelligent, and sympathetic co-operation on the part of the management and users of materials. Co-operation is not a sentiment but a vital economic necessity. Supervisors of using departments should make periodical checks of stocks carried, to assist in proper ordering and substitution of materials; also, they should always advance the supply department data on unusual anticipated usages of materials. The supply department cannot be expected to meet unusual heavy demands without a forecast, except at the expense of a considerably larger investment than required.

It is only through constant education that material conservation bears fruit and although individuals very often adopt a different attitude toward material as compared with money there is no apparent good reason for it. To place materials in a storeroom, as compared with delivery direct to users and immediate usage thereof, adds to the cost of the material the maintenance, depreciation, insurance and taxes on buildings and equipment, interest, depreciation, insurance and taxes on investment in supplies, cost of clerical work in maintaining records, interest charges on fixed and movable equipment, light, heat, etc.

Comparison with a Cashier

Comparison with a cashier is not unreasonable. The storekeeper must account for all material received and when he does not receive an order for material taken from stock it means that an accounting adjustment at the end of the year is necessary, which not only distorts the accounts but creates shortages which should no more occur than in the handling of money. The stores department is the fiscal agent for materials as is the treasurer for monies, and it is as essential for the storekeeper's accounts to balance as it is for the treasurer's. This can only be accomplished by correct accounting which means, among other things, that there must be an order furnished to the storekeeper for all materials taken from stock. In many instances it is uneconomical for the railroad to have materials covered by stockkeepers the entire 24 hour period and

the users must be depended upon to furnish necessary withdrawal orders.

To obtain a record of what is on hand and used of materials a classified *stockbook* is used with a *master stockbook* at the general office. All requisitions are checked against this assembled data and surplus material transferred. Therefore, material on hand and not needed should be carefully and completely reported so that it may be available for use elsewhere and not be permitted to lie around and become useless.

If materials are being received that do not appear to give proper service, it is the duty of the using department to direct attention thereto. The cost of materials is not the purchase price but rather the amount paid for them plus the expense of storing, handling, recording, etc., divided by their life, and the less gross operating revenues expended for materials the more is available for other purposes.

A business, to progress, must be careful at all times to limit its commitments to its income before and not after they are made. The using departments play a big part in this and must assume their share of the responsibility by giving advance information as to special heavy materials required for backshop work, improvement work, car program work, and other analgous special jobs so that arrangements may be made to co-ordinate as near as practicable the delivery of materials with the disbursement for labor. Material and labor expenditures for application should always travel together. By the using departments properly assuming their part of the responsibility the turnover, company's treasury, and all other economic factors will be better regulated.

No Finality to Standardization

With an investment of over $500,000,000 in materials and supplies, comprised of 70,000 or more items found necessary in the operation of railroads of the country, continued and constant studies are essential towards simplification and standardization tending to reduce the present investment and number of items carried. Too many varieties is the mother of excessive investment, greater carrying costs, slow turnover, rapid obsolescence, decreased profits and economic waste. A permanent committee on standardization, consisting of members of the using and supply departments, is necessary and should be so organized that suggestions come to them from the users of material; this committee to also pass on all added items of material. As I view it, there is no finality to standardization.

The supply department should be in charge of all unapplied material and supplies regardless of whether at storehouses or out on the divisions. As to materials on line of road, greatly improved results are generally obtainable through proper co-operation between roadway and supply departments. There is no necessity for having material strewn along a railroad, improperly protected and accounted for, and the using departments should be only too glad to have the supply department carry out its proper function. The quantity of such material to be carried at storehouses should be constantly reviewed for the purpose of minimizing the investment. This matter is receiving most earnest consideration of railroads, by both the supply and using departments, and it is expected that substantial reductions in material investment will be effected through this channel.

Budgeting

Some progress has been made in the budgeting of material and supply requirements in money; it is, however, only in its infancy. The day will come when this will be a practical proposition and the members of Division VI of the American Railway Association are giving it serious thought.

Substantial savings are made annually by the railroads in the reclamation of materials. Another problem that is before the supply department and should be solved at an early date, is what materials should be manufactured by them and the savings, if any, accruing therefrom. This is a problem that is not readily answerable because railroads do not maintain real costs thereof. As in all manufacturing you have three elements—labor, material, and overhead. The proper costing of labor and material is not difficult but we do find the old bugaboo of proper overhead and distribution thereof staring us in the face, and investigations indicate that in most instances railroads figure overhead too low. Certainly, as a general broad statement, it would not seem to be necessary to refute the thought that a manufacturer could and should manufacture his products (including a reasonable profit) cheaper than can be done by a railroad. A railroad's business is to manufacture transportation and not materials unless it is economical to do so and it thereby assists itself in reducing the cost of manufacturing transportation. Each manufacturing operation should be a separate study. Information on file indicates that overhead is included at from practically nothing to 150 per cent on direct labor.

Another matter which has always been a bugbear to the railroad supply department is that of comparing material balances and costs of one railroad with another. Material balances are not comparable due to lack of uniform accounting and until that is corrected it is really impossible and impractical to compare balances. The representatives of the Railway Accounting Officers Association have co-operated heartily with the committee of Division VI American Railway Association and their views correspond with those of many railroads, which is that materials should not be charged out of the asset account "material and supplies" until actually applied to service. Further, it is found that many railroads include in their turnover, transfers from one storehouse to another or from one point on the railroad to another point. This is erroneous and in figuring turnover it would appear proper that it be based only on charges to closed accounts such as operating expenses, additions and betterments, individuals and companies, etc. Any comparison on basis other than dividing the balance by sales to using departments of materials used by them is in the opinion of the speaker fallacious.

As to departmental operating costs, the practices vary to such an extent as to practically vitiate comparisons. It would appear reasonable that the cost of handling should be based on payroll costs as compared with materials issued to closed accounts, as practically no other costs included in "store expense" are comparable one railroad with another. Outside of payroll expense it is a matter of prorations and depends almost entirely on basis of proration. A proper measuring stick for balances and costs should be promulgated and information furnished by individual railroads to Division VI, of American Railway Association so that one railroad may ascertain its closest competitors in these respects and analyze their methods and policies, improving the results for the railroads at large.

That some degree of success is attending the efforts that are being made to reduce the vast investments carried in materials is evidenced by the reduction in inventories from $755,000,000 in 1920 to $526,000,000 in 1926. No definite figures are available as to cost of operations carried on by the supply department, but it is fair to assume they have also been reduced. It is reasonable that balances and costs should be reduced,

as more and more railroads are coming to the organization of a separate supply department instead of having same under direct supervision of local using department officers. A continued program of reduction in inventories and costs of handling materials is vital to reduction in cost of manufacturing transportation. It is expected reductions this year will be greater than that of former years. The vast reduction made in inventories is also explained in a large measure by better co-operation between the supply and using departments, resulting in a closer co-ordination of deliveries of material with actual usage, and closer ordering and more prompt deliveries by manufacturers.

Discussion

Several speakers took part in the discussion following the addresses. No decided issue was taken with the statements made by the speakers, but several important points that they mentioned were amplified or more fully developed. The fact that purchasing agents are recognizing the importance of becoming more familiar with the nature of the materials used and the character of the processes in their manufacture, was commended. The suggestion was made that in comparing costs of material they should include the transportation and storekeeping costs, divided by the number of years of service. The purchasing department should have as much freedom as possible and to this end simple and clearcut specifications should be provided.

Roads' Stress Rate Cuts In Wage Testimony

REDUCTIONS in rates in the past five years have forced the western freight rate level to a point almost 17 per cent lower than in 1921, A. F. Cleveland, assistant freight traffic manager of the Chicago & North Western, told the board of arbitration sitting on the western firemen's wage increase application at Chicago on October 24. Mr. Cleveland presented figures showing that the western carriers are also at a disadvantage in the matter of passenger rates, even though the rate level has increased.

The hearing during the latter part of the previous week and the first part of this week was characterized by persistent objection by Donald R. Richberg, attorney for the Brotherhood of Locomotive Firemen and Enginemen, to all testimony presented dealing with the valuation of the particular railroads involved in the hearing. Each objection was extended to evidence concerning the earnings of the railroads as it was based on that valuation and was in turn overruled each time by the board. Mr. Richberg objected in this connection to figures brought in by Hale Holden, president of the Chicago, Burlington & Quincy, L. E. Wettling, manager of the Statistical Bureau of the Western Railroads, and H. E. Byram, receiver of the Chicago, Milwaukee & St. Paul.

Mr. Cleveland said that in the past five years the public has been saved almost $1,400,000,000 by reductions in western freight rates below the rate level existing in 1921. "In July, 1922, a general freight rate reduction of 10 per cent under the 1921 level was made throughout the country," Mr. Cleveland continued. "In addition to this cut, however, the western railways suffered numerous further freight rate reductions, particularly on agricultural products and live stock, these extra decreases forcing the Western freight rate level in 1926, to a point almost 17 per cent lower than in 1921. The importance of these additional freight rate reductions in excess of 10 per cent on agricultural products is apparent when it is realized that these additional cuts, over and above the general 10 per cent decrease, have saved the public almost $430,000,000 in the last four years. In addition to standing a general 10 per cent reduction in their freight revenues, the western lines in the last four years have made an extra sacrifice of almost $430,000,000 as their contribution to what has been judged by public authority the economic necessity of the West.

"The present unfortunate position of the western carriers is obvious when it is realized that with a freight traffic density only one-half as great as the southern roads and only one-third as great as the eastern roads, western freight rates in 1926 were only 35 per cent higher than in 1915, while in the same period southern freight rates had been increased 41 per cent and eastern freight rates had been increased 69 per cent.

"A similar situation holds true as regards passenger traffic. The Western District has a lower passenger traffic density than either the Eastern or Southern district. From 1915 to 1926, western passenger traffic density actually declined 14 per cent, while in the same time there was an increase of 23 per cent in the South and an increase of 25 per cent in the East. There is the further fact that from 1915 to 1926 western passenger fares had been raised but 44 per cent, while fares in the East and South had been raised, respectively, 51 per cent and 56 per cent. All of these unfavorable traffic and rate conditions illustrate the disparity between the Western roads and those in other sections of the country, and explain why the Western carriers have not been able to regain their pre-war earning power as have the other railways."

Hale Holden testified on October 19 that any upward movement in the cost of operation, through an increase in the wages of firemen, would necessarily result in increases in transportation charges, if the maintenance of adequate transportation is to be assured. Mr. Holden advanced three reasons which, he said, make it imperative for the Burlington to resist the firemen's wage demands. There is the necessity, in the face of economic conditions affecting the territory which we serve, of reducing instead of increasing transportation costs and the situation with regard to earning power is even less favorable than a year ago, he asserted. Since 1921, the Burlington has been able to make marked reductions in unit costs of operation through reduction in the cost of materials and through economy of performance, yet the wages of train and engine service employees have increased with the result that their wages now constitute a much larger proportion of train-mile costs than formerly, he continued.

Mr. Holden called attention to the decision of the board of arbitration during July, 1927, in which the wages of conductors and trainmen on western railroads were found to be adequate. He also spoke of the improvement in the working conditions of the firemen and declared that under present wage scales the Burlington has had no difficulty in obtaining an adequate number of men to supply its needs.

In 1916 the average annual compensation of all train and engine service employees on the Burlington, except firemen and hostlers, was $1,537, asserted Mr. Holden. In 1926 the average annual compensation of this same group was $2,444, an increase of 59 per cent. The firemen and hostlers with an average annual compensation of $1,286 in 1916 had increased their earnings so that they enjoyed an average annual compensation in 1926 of

$2,177, an increase of 69 per cent. In 1916 the average annual compensation of road firemen was 64.78 per cent of that of road engineers, while in 1926 it had risen to 73.95 per cent of the road engineer's compensation. The compensation of yard firemen in 1916 was 63.33 per cent of that of yard engineers, while in 1926 it was 78.01 per cent of the compensation of yard engineers. Hostlers' compensation in 1916 was 64 per cent of yard engineers' and 75 per cent in 1926.

Mr. Holden presented figures to show that in 1926 the average annual earnings of train and engine service employees on the C. B. & Q., based on the middle of the month count was as follows: passenger firemen, $2,483; through freight firemen, $2,216; local freight firemen, $2,581; yard firemen, $1,879; inside hostlers, $1,763; outside hostlers, $2,135; outside hostler helpers, $1,822; passenger engineers, $3,278; through freight engineers, $3,041; local freight engineers, $3,469. Of conductors those in local freight service were shown as earning the largest amount of their group, $2,951. Local freight brakemen earned the greatest annual compensation in their group, $2,349.

Firemen's Average Age

The average age of firemen on the Burlington who were members of its relief department on December 31, 1926, was 32.68 years. The average ages of other employees were: engineers, 48.55 years; conductors, 49.19 years; brakemen, 34.91 years; switchmen, 37.66 years; officers, clerks, agents and operators, 34.87 years; maintenance of way and equipment employees, 34.41 years.

Mr. Wettling introduced exhibits to show that in the northwestern region, the area as defined under federal control, net railway operating income for the first seven months of 1927 was 19.5 per cent less than for the same period of 1926. In the central western region, for the same period, the decrease in net railway operating income was 10.13 per cent and in the southwestern region, 11.24 per cent.

For the western district as a whole the decrease in net railway operating income for the first eight months of 1927 was 13-18 per cent of the amount for the same period of 1926, he said.

"The only way to provide revenue to meet any increase in wages is through increases in rates," testified H. E. Byram. "However, when business conditions in this section of the country are such that many classes of the population have suffered severe losses, when the railways as a whole are not earning the designated fair return, and when, as in the case of the St. Paul, the stockholders have not received any return on their investment during the past 10 years, I do not think that any increase should be made in railway rates in order to grant further increases in wages to men whose hours of work have been reduced, whose working conditions have been improved, and who have already received substantial wage increases in excess of those granted to other employees in the same class of service.

Rate Reductions

"Between September 20, 1921, and July 1, 1927, the commission made reductions in rates which reduced the net income of the St. Paul approximately 20 million dollars annually.

The comfortable position of the St. Paul in 1916 of earning over two times its fixed charges was turned into a succession of deficits. For the six years, 1921 to 1926, the average return on invested capital was only 2.13 per cent while the total deficits, after interest charges, amounted to more than 26 million dollars.

"The locomotive firemen have already received preferential treatment in the matter of wages," said Mr. Byram, turning his attention to the condition of the firemen in comparison with other railroad employees. "In 1926 the average yearly wages of firemen on the St. Paul had been increased over the 1916 level by almost 14 per cent more than the average wages of all other train and engine service employees had been increased. In this same period there had been a marked reduction in the amount of physical labor required of the firemen, as in 1926 only about 15 per cent of the main-line gross tonnage was handled by hand-fired locomotives. Approximately 75 per cent of this tonnage was handled by mechanically-fired locomotives, 2½ per cent by oil burning locomotives and the remainder by electric locomotives."

W. M. Jeffers' Testimony

W. M. Jeffers, general manager of the Union Pacific and chairman of the General Managers Conference Committee, declared on October 25 that there is no class of labor on the railroads which, considering the skill and responsibility, is as well paid as the locomotive firemen. Their leaders, while trying to raise total wages as much as possible, see the necessity for so limiting the earnings of the men as to keep their individual wages from being so high as to attract attention, he asserted. Through the limitation by means of the Chicago Joint Working agreement more men are now employed than are necessary to handle the business and, while this adds to the financial resources and power of the firemen's organization, the curtailment of earnings does not square with continued demands for higher basic rates of pay, he continued. Mr. Jeffers introduced as proof of his statement an exhibit showing the earnings and working conditions of firemen on the Union Pacific for a typical month. He compared with actual conditions the conditions which would prevail if the Chicago agreement were not in effect. On the portion of the Nebraska division between Council Bluffs, Iowa, and Omaha, Neb., and Grand Island, Neb., 26 firemen are now employed in pool passenger service, who average 4,782 miles each and earn an average of $235.10 with an average working time of 158 hours each. If the Chicago agreement were not in effect the number of men required to handle the same number of trains could be reduced by 5 and 21 men averaging 5,921 miles per month with an average period of service of 195 hours could earn an average compensation of $291.08 or $55.92 more per month than at the present time, he testified. His exhibit contained similar figures for each operating district on the Union Pacific for both passenger and freight service.

Length of Testimony

Thomas C. Powell, president of the Chicago & Eastern Illinois, after being sworn in on October 25 was withdrawn by counsel for the carriers when Hazlett P. Burke, chairman of the board, raised a question concerning the length of the railroad testimony. At the same time Mr. Richberg objected that the railroads had not yet presented a true picture of the situation in the West by omitting testimony concerning the prosperous railroads in the Southwest.

Frank C. Squire, engineer for the western group of the Presidents Conference Committee on Federal Valuation of Railroads, presented an exhibit showing the revised valuation of each railroad which is a party to the arbitration after account had been taken of additions and betterments made since the original valuation date of the railroad. A formal objection to these figures by Mr. Richberg was overruled by the Board.

S. Davies Warfield Dies

S. A. L. president and prominent figure in railroad policy discussions succumbs after minor operation

S. DAVIES WARFIELD, president of the Seaboard Air Line, died in Baltimore on October 24, at the age of 64 years. His death was attributed to coronary thombosis, or blood clot on the heart, and occurred while he was supposedly recovering from an operation.

Mr. Warfield was for several years a rather spectacular figure in the railroad world. This was due to the wide diversity of his interests, the originality of his ideas and his energy as a protagonist for any cause in which he believed. His early training was in industry and banking rather than in railroading, which latter he did not enter until 1908, when he became one of the receivers of the Seaboard Air Line. In 1912 he headed a group of bankers and business men which acquired control of the property. Mr. Warfield began his business career in Baltimore as a clerk in the office of a sugar importer. Subsequently he organized and directed the Warfield Manufacturing Company. In 1898 he founded the Continental Trust Company of Baltimore and remained its president until the time of his death. His work as head of a large financial institution naturally led to participation in the organization and direction of various industrial enterprises.

S. Davies Warfield

So it was that in 1908 he became a receiver of the Seaboard Air Line and in 1912, with a group of bankers and busines men, acquired control of it and its affiliated properties, Mr. Warfield heading the group and becoming the chairman of the board of directors of the railroad and assuming an active part in its management. He became president also of the company at the end of the period of federal control. Mr. Warfield was the largest single owner of the company's stock. He did not have a majority interest but exercised control over the property's destiny by reason of the confidence reposed in him by other leading stockholders.

Of Mr. Warfield's management and rehabilitation of this property possibly the most outstanding act was the building of the extensions in Florida—some 500 miles of new construction—and the acquisition of additional existing trackage in that state. This extension program was the more noteworthy since it was undertaken at a time when the road was still in straitened financial circumstances. This action, however, has given the Seaboard a strong footing in Florida, providing its lines to the north was increasing traffic, and allowing it to expend large sums for physical improvement, such notably as ballasting, heavier rail, stronger bridges, signals, etc.

The year 1926 was the best year the Seaboard ever had. In the current year there has naturally been some recession in traffic due to the ending of the Florida boom, but the decline has not been startling and the Seaboard with its increased mileage will doubtless share in the prosperity which should follow the growth of the territory it serves. In the early days of Mr. Warfield's association with the property it had a route mileage of 3,046 (1911). He left it with 4,318 miles. In 1911 it carried 1,275 million ton-miles of revenue freight. In 1926 it almost tripled that figure. In 1911 the property had operating revenues of 21.8 millions; in 1926, 67 millions. In 1911 its net after charges was 1.7 million and in 1926 it was 3.2 million. And yet the property under Mr. Warfield's management was primarily built up for the requirements of the future and a full measure of return from his leadership may not be expected immediately.

It was not in the management of the Seaboard alone, however, that Mr. Warfield made his influence felt in the railroad world. During the period of federal control he organized and headed the National Association of Owners of Railroad Securities and immediately became extremely active in the discussion of proposed plans for the return of the roads to their owners. Aligning himself sharply against the opinion of many other railroad executives, he endeavored to secure the adoption of a bill embodying his own ideas. In this he was not entirely successful, although the Transportation Act as finally passed bears many evidences of his opinions. This is particularly true of the famous Section 15-A.

With the passage of the Transportation Act the association, under Mr. Warfield's aegis, continued its efforts to direct railroad policy. A "board of economics and engineering" was appointed to make studies and recommendations of methods for improving railway efficiency. The association conferred with officers of the train service brotherhoods and endeavored to bring about

a close entente between the unions and the railroads. Of all Mr. Warfield's activities in the general railroad field, however, probably the best known is his plan for car pooling and the determination with which he advanced this plan for several years. As a part of this plan the National Railway Service Corporation was organized with Mr. Warfield as its president. Aside from the car pooling idea the association also prepared a comprehensive reorganization plan for Chicago terminals which, like the car pooling plan, found little favor among railroad men. He was a leader among the roads which settled the 1922 shop strike by peace negotiations with the unions involved.

Latterly Mr. Warfield had not been quite so active in the field of general railway policy, possibly because of the great amount of his time required in overseeing the Seaboard's tremendous expansion program in Florida. Although not many of his ideas regarding general railroad policy were adopted in the form he wished, his proposals were always thoroughgoing and were put forward with such fervor that other railroad executives, seeing problems and solutions from a different point of view, had always to recognize in him a capable opponent.

Solomon Davies Warfield was born in 1863 in Baltimore, Md. In the early days of his career he served as a clerk in the offices of several Baltimore firms and later engaged in manufacturing. In 1898 he organized the Continental Trust Company and continued as its head until the time of his death. From 1894 to 1905 he was postmaster in Baltimore. His financial interests led him into railroading as a receiver of the Seaboard Air Line and one of its organizers in its present form. He later became the chairman of its board of directors and of its executive committee and, finally, its president. He organized a group which acquired the gas and electricity properties of the city of Baltimore and was instrumental in originating electric power development on the Susquehanna river. He served as a member of the reorganization committees of the Missouri Pacific, the Western Maryland and Rock Island and as a director in a number of companies, among them the Richmond, Fredericksburg & Potomac and the Consolidated Gas, Electric Light & Power Co., of Baltimore and several insurance companies. He headed the National Association of Owners of Railroad Securities and the National Railway Service Corporation, both of which he organized. He was an active member of a number of learned societies and found time in spite of his many official duties to interest himself in many matters of civic interest.

Policies to Be Continued

Mr. Warfield's will was so drawn to insure that his closest associates, who were well acquainted with plans for his properties, will take over the reins where he left them, insuring no deviation from policies which he outlined and plans he had under way. A statement by W. W. Miller, personal counsel to Mr. Warfield, follows:

"Mr. S. Davies Warfield, late president of the Seaboard Air Line Railway, by his will, executed some five or six weeks ago, just prior to his leaving for a fishing trip in Canada, showed undying love and affection for the South, his sincere interest in its development and entire confidence in its future.

"He speaks of his very large investment, and his great personal interest, in the development of the Seaboard Air Line Railway, as a means for the upbuilding of the South, born of an affectionate sentiment for both the company and the South.

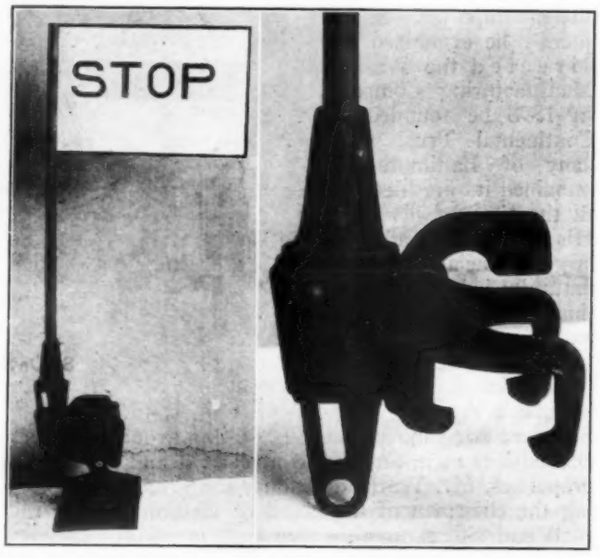
"Mr. Warfield's confidence in the Seaboard Railway and the South is shown by the fact that he directs that his very large holdings of stock in the Seaboard Air Line Railway Company be held and not sold, and in appointing a committee consisting of Vice-Presidents Robert L. Nutt and L. R. Powell, Jr., his personal counsel, William W. Miller, his friend, Franklin Q. Brown, of Redmond & Co., and Robert Foster, Jr., vice-president of the Continental Trust Company of Baltimore, as a committee to control and vote the stock of the Seaboard Company for the purpose of continuing Mr. Warfield's plans and his hopes and aspirations for the development of the Seaboard Company and of the territory served by it.

"The whole of Mr. Warfield's residuary estate is to be used as a foundation for the 'Anna Emory Warfield Home' for dependent aged ladies to be established and maintained at his Manor Glenn Farm at Monkton, Baltimore county, Maryland."

Safety Flag Holder

A SAFETY flag holder, known as the Lion-Grip signal holder, and designed to hold a blue flag as a protection to workmen on repair tracks at isolated cars, in enginehouse stalls, etc., has been developed and is being manufactured and marketed by the Danville Malleable Iron Company, Danville, Ill. This device, attachable to the rail as illustrated, is made of malleable iron parts subject to little wear and requiring no adjustment in setting up or taking down the flag.

The holder is designed to be positive in action, durable and light in weight. It is self-adjusting to any size of rail and holds the signal in a firm, upright postion at right angles to the track. In operation, simply placing the holder on the rail automatically clamps it in place. An upward lift automatically releases it. When necessary, a switch lock applied in the bottom hole locks the flag holder to the rail. The construction is such that the flag or signal attached to the staff cannot be turned, accidentally or otherwise, parallel to the track so as not to be seen by the crew of an approaching locomotive or other piece of moving equipment.



Safety Flag Holder Notable for Light Weight and Easy Application to and Removal from Rails

Communications and Books

Upper Mississippi Waterway Case

WASHINGTON, D. C.

TO THE EDITOR:

On page 665 of the issue of the *Railway Age* for October 8, 1927, is an editorial entitled "The Upper Mississippi Waterway," referring to the Commission's report in *Inland Waterways Corporation* v. *C. G. W. R. R. Co.*, 129 I. C. C. 521, and reading in part as follows:

"The four railways party to the complaint, including the Chicago, Burlington & Quincy, the Illinois Central and the Chicago, Milwaukee & St. Paul, as well as the C. G. W., presented a clear-cut defense before Attorney-Examiner John H. Howell, who had presided at all barge line hearings concerning the lower river. Since Mr. Howell decided each of the previous cases in favor of the barge lines, it may be presumed that he is at least not prejudiced in favor of the railways; yet, he recommended unqualifiedly that this complaint be dismissed."

The Illinois Central made no defense in this case and was not opposed to complainants' prayer for differential rates, as was pointed out in the report. Attorney-Examiner Howell had not presided at any hearings in cases involving the barge line or had any other connection with such cases prior to January 20, 1927, the date of the opening hearing.

G. B. MCGINTY,
Secretary Interstate Commerce Commission.

Reducing Water Stops

CHICAGO.

TO THE EDITOR:

Your editorial in the issue of October 15, entitled "Reducing the water stops," refers to the delays invoved in making unnecessary stops for water and the damage to the equipment, but overlooks at least one argument far more important than the two mentioned.

Some time ago, a superintendent of motive power pointed out that his railroad was blessed with some of the best water supplies in the United States but was also afflicted with some of the hardest water supplies and had not been able to use the good water to the exclusion of the bad. It also happened that an unusually large order for new power was about to be placed and the water conditions were deplored.

A study of the situation, however, developed that it would be entirely possible with through runs and larger tender tanks to avoid practically all of the bad water supplies, picking up water only from the good water supplies, since the best water supplies were at the terminals forming each end of the proposed runs. The results were surprising. Although the new power carries higher boiler pressures than is the general practice, the effects of the water in shortening firebox and tube life, instead of being more pronounced, were less pronounced. The cost of water treatment was reduced more than 50 per cent and boiler maintenance was decreased instead of increased by the change.

L. F. WILSON,
Vice-President and General Manager, The Bird-Archer Company.

The World's Fastest Train

PARIS, France.

TO THE EDITOR:

I do not know whether it has been brought to your attention or not, but according to the latest issue of the guide of the International Wagons-lits, the fastest regular scheduled train in the world is now the "Sud-Express" from Bordeaux to Dax.

According to the railway guides which I have before me, the "Sud-Express" covers the 148 kilometres (92 miles) between Bordeaux and Dax in 91 minutes. After a three-minute stop at Dax, the next 50 kilometres (31 miles) to Bayonne are made in 31 minutes. All of which is quite a rapid pace, and beats the average of 58 miles per hour made by the "Golden Arrow" between Paris (Nord) and Calais, although the latter train covers a greater distance, 185 miles, approximately.

This burst of speed of the "Sud-Express" is made over the lines of the Midi Railway, a line not heretofore noted for operating any fast trains. The lines south of Bordeaux are electrified, and the "Sud-Express" and other passenger trains are hauled by electric locomotives.

LAWRENCE T. JONES.

[The 92 miles in 91 minutes mentioned by Mr. Jones figures out at 60.6 m.p.h. The Pennsylvania has a service between Camden, N. J., and Atlantic City, 58.4 miles, which is traversed in 58 minutes (60.4 m.p.h.). The Reading, between the same points, 55.5 miles by its lines, has schedules of 55 minutes (60.5 m.p.h.). The Great Western of England covers the distance from Swindon to Paddington, 77.5 miles, in 75 minutes (61.8 m.p.h.), or at least did so a few years ago.—Editor.]

The "Log" of an American Train

ST. LOUIS.

TO THE EDITOR:

The log of a typical run of a fast British passenger train, as published in your issue of October 1, is very interesting. It might be a good idea to run something of this sort about American trains once in a while.

Last Sunday, October 2, I took a short trip on New York Central (Big Four) train No. 12, the "Southwestern Limited," which, incidentally, is the fastest train in the world running for over 1,000 mi. The schedule calls for 2 hr. 25 min. over the 124 mi. from St. Louis to Mattoon, Ill., and the 115 mi. from the end of the terminal zone at Granite City must be covered in about 2 hr. in order to maintain this timing.

On the date in question we left St. Louis 11 min. late and covered the 124 mi. in 2 hr. 15 min., the average speed, including terminal delays, being about 55 m.p.h. The train consisted of 10 Pullmans. The 115 mi. from Granite City to Mattoon were run in 113 min.—61 m.p.h. No very fast running was done over the first 30 mi., owing to track repair work at various points. From Livingston, Ill., to Mattoon, 87 mi., the time was 80 min.—65 m.p.h. The stretch from Livingston to Pana, Ill., 48 mi., was covered in 41 min.—70.2 m.p.h. The maximum speed was approximately 82 m.p.h., with at least four or five consecutive mi. at 80.

This train often is delayed in getting out of St. Louis and the run in question is probably nothing out of the ordinary. It certainly could have excited no comment from anyone not timing the trip.

A. L. BOSTWICK.

Daily Operating Statistics

PUEBLO, Colo.

TO THE EDITOR:

Everyone recognizes the importance of statistics in determining the efficiency of railway operation, yet comparatively few railways are deriving the benefits that may be obtained from daily operating statistics.

Most roads render statements after the month's operation and send them to the superintendents for analysis and explanation. Then they are used at staff meetings to determine the goals for the following month. In other words, last month's figures are used and current statistics are not available.

It is better to compile statistics daily, and know currently how closely the division is making the goals set for the month, for in this manner, the superintendent knows currently just how his costs are running and in the event any particular service or

operation is too costly, this will show up at once and may be remedied without delay.

It is not unduly difficult to prepare daily operating statistics. Simply compile into daily running records the daily reports that superintendents are now receiving from master mechanics, dispatchers, yardmasters and other division officials. The wheel reports should be transferred from the car accountant's office to the superintendent's office. Train and engine crew wages may be pulled daily from the time slips and loading reports compiled from the daily reports made by the agents.

Railway efficiency today requires that prompt and accurate comparisons with previous performances be made, and this may be done much more satisfactorily by means of daily reports which reflect the existing situation.

CHARLES A. GARRARD.

[A description of the method used on the Gulf, Mobile & Northern, whereby statistics of each day's transportation costs are made available the following morning, appeared in the *Railway Age* of December 18, 1926, page 1228. EDITOR.]

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Albert Fink, 1827-1897—A Bibliographical Memoir of the Father of Railway Economics and Statistics in the United States. Prepared in connection with the 100th anniversary of Mr. Fink's birth, October 27, 1927. 21 p. Pub. by Library, Bureau of Railway Economics, Washington, D. C. Apply.

Depreciation—Testimony and Cross-Examination of Henry Earle Riggs... in the Matter of the Valuation of the Property of the New York Central Lines, Washington, D. C., August 25, 26, 1927. 123 p., charts. Pub. by Secretary, Presidents' Conference Committee, Philadelphia, Pa., "for the information and convenience of those interested."

Statistical Abstract of the United States 1926, compiled by U. S. Dept. of Commerce. "Steam and electric railways and express companies" p. 377-409. 831 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., $1.00.

Periodical Articles

The Limits of Aviation, by Lieut. Commander Bruce G. Leighton. "The future of the airplane, both in peace and war, lies in pursuits other than transoceanic transportation or other independent long-range operations." p. 603. Atlantic Monthly, November, 1927, p. 603-610.

La Naissance des Chemins de Fer en France, by H. Vintousky. The early history of French railways, with an account of the celebration of the Seguin centennial this year. Revue Générale des Chemins de Fer, October, 1927, p. 339-353.

A New Use for Annual Reports, by Edward A. Muschamp. A whimsical suggestion to stockholders that has its possibilities. Harper's Magazine, November, 1927, p. 784.

Why Not a Circulating Library for Trains? by Mary E. Clark. Two travelers and what their suggestion did on one train. Editorial comment, p. 1075. Publishers Weekly, September 24, 1927, p. 1072-1073.

Without Title, by Leo F. Creagan. A short story of an emergency and how it was met that has a number of surprises in it. Sunset, October, 1927, p. 20-23, 62-66.

The Berths of a Nation, by Weare Holbrook. On the passing of some typically American scenes and customs due to the growing use of compartment cars. Illustrated by Tony Sarg, New York Herald Tribune, October 2, 1927, p. 9, 29.

A Library in a French Garden City. The Bibliothèque des Cheminots (or Railwaymen's Library) at Lens in the suburb built by the Northern Railway of France as part of its reconstruction and housing plan. Library Journal, October 1, 1927, p. 927-928.

Looking Backward

Fifty Years Ago

The Longmont branch of the Union Pacific, providing a direct route between Omaha, Neb., and Denver, Colo., will be open for travel about November 1. The branch leaves the U. P. at Hazard, six miles west of Cheyenne, Wyo., and runs to Denver by way of Fort Collins and Boulder.—*Chicago Railway Review,* October 27, 1877.

The returns which are coming in from the experiment of substituting steel for iron rails, continue to prove that the heavy first cost was really a forward step. Of 5,000 tons of steel laid on the Detroit & Milwaukee (now a part of the Grand Trunk Western) in 1873 less than 15 tons have been taken out and the 6,000 tons laid since show a similar marked and gratifying tendency to reduce expense for track repairs.—*Railway Age,* November 1, 1877.

The opening of the Tyler Tap (now a part of the St. Louis Southwestern), from the crossing of the Texas & Pacific at Big Sandy south by west to Tyler, Tex., about 20 miles, was celebrated by a barbecue at Tyler on September 18. Many excursionists were present and it was stated that another section of this narrow gage line, 20 miles long, is in process of construction from Big Sandy, Tex., to Gilmer.—*Railway Gazette,* October 26, 1877.

Twenty-Five Years Ago

H. E. Byram has resigned as superintendent of the Cascade division of the Great Northern to accept the position of chief clerk in the office of the assistant to the president of the Chicago, Rock Island & Pacific at Chicago.—*Railway Age,* October 31, 1902.

The shareholders of the Grand Trunk were pleasureably surprised at the recent semi-annual meeting by the announcement that a full dividend would be paid on second preferred stock, on which no returns have been received since 1883.—*Railway Age,* October 31, 1902.

On November 15 the Southern Pacific will place in service between New Orleans and San Francisco a daily train to be known as the "Golden Gate Express," change the service of the "Sunset Limited" from thrice a week to daily and reduce the running time between those two points about 12 hours.—*Railway Age,* October 31, 1902.

The passenger department of the Atchinson, Topeka & Santa Fe has opened headquarters at Gothenburg, Sweden, for the purpose of obtaining desirable immigrants to settle on its lines in the Southwest. At the same time the Santa Fe has discontinued its Italian passenger and immigration office at Rome. —*Railway Age,* October 31, 1902.

Ten Years Ago

The Russian railway service corps, organized to assist in the operation of the Trans-Siberian Railway, will include 208 men from the operating and mechanical departments of practically every western railroad. In its personnel will be 11 division superintendents and 12 master mechanics.—*Railway Review,* October 27, 1917.

Representatives of 200,000 organized railroad workers in the northeastern part of the United States and eastern Canada decided at Ottawa, Ont., on October 18, to recommend that their union demand from their employers wage increases of not less than 20 per cent. The lack of practical value of the much sought for two hours per day accruing to the trainmen, conductors, baggagemen, brakemen and yardmen from the "eight-hour" controversy is advanced as a reason for the demand.—*Railway Review,* October 27, 1917.

Odds and Ends of Railroading

One of the few Japanese foremen in railway mechanical departments is to be found on the Atchison, Topeka & Santa Fe, at Winslow, Ariz., in the person of Kumanoski Nomoto. He has been gang foreman, with supervision over freight locomotives, since 1921. In his 25 years' service with the Santa Fe, Nomoto has been messenger, machinist helper, handy man, machinist and foreman. He is known as "King" Nomoto at Winslow, for he is the leader of the Japanese colony there.

A. E. Hutchinson, inspector of train, station and yard service on the Gulf, Colorado & Santa Fe, claims to be the champion railway fisherman. Moreover, he supports his claim with documentary evidence in the form of a photograph showing himself and his catch. The fish was what is known along the Gulf as a "silver king" tarpon, 7 ft. 1 in. long and weighing 173 lb. It is said to be the largest tarpon ever landed around Galveston. Eighteen minutes from hook to gaff is also claimed as a record for a fish of this size.

Paint and the Boys of '76

After much controversy and historical research, the Boston & Maine has determined that buff and blue were the authentic colors worn by the minute men, and the locomotives running on the train called "the Minute Man" will continue to wear those colors. The Boston Herald investigated the matter in considerable detail. The confusion was caused by the great number of color combinations worn by the various bodies of troops during the Revolutionary War. The fact that George Washington wore a buff and blue uniform when he went to Cambridge, Mass., to take command of the Continental Army was used as a strong argument. Harold Murdock of Harvard, who is an authority on Revolutionary affairs, supported the stand of the railway and said, in closing his arguments: "To be historically exact, no paint could be used anywhere. The chairs should be upholstered in homespun, with rag rugs on the floor, while they would serve rum and hard cider in the dining car."

A Black List and a White One

In this department in our issue of September 10, we printed a "blacklist" of undesirable characters issued by the Piedmont & Northern freight claim committee in its efficiency campaign. We have now received a carbon copy of an official circular issued by L. G. Waldrop, superintendent of the Nashville Terminals of the Louisville & Nashville, dated June 18, 1921, in which he blacklists the same individuals with the addition of the following:

Cutt M. Short	X. S. Coal	Tay K. Chance
Ty M. Killer	On. A. Spot	Smash M. Hard
Fall T. Seal	N. E. Ficient	Watt R. Spiller
Lett M. Hitt	Knott Safe	Way J. Signer

Under date of August 25th, 1921, Mr. Waldrop issued another circular calling attention to some "exceptionally valuable fellows," as follows:

A. Good Worker	Cutt Hose	Load M. Wright
U. R. Safe	E. Z. Cuppler	Loyal Mann
Watt R. Saver	Switch M. Careful	O. K. Seale
I. M. Clean	Bos M. Fair	Neva D. Lays
E. Saves Coal	Mon. A. Saver	Noah Ruff Hanlin
	Will T. Learn	

Bard, Let's See Your License!

"I read with coniderable interest your article in the September 17 issue of the *Railway Age* entitled, 'Inspired Words on Railway Romance,' writes Charles C. Boggs from Denver, Colo. "There is a truly remarkable statement in the editorial that you quoted from the London Times that deserves special comment. It is this: 'For short journeys the motor car, which goes direct from door to door, starts when the traveler pleases and stops nowhere except at his desire, is better than the train.' I am not a motorist, but there are many of your readers who are and who would, no doubt, be very gratefully appreciative of being informed where such a car can be obtained. I have never heard of one, but perhaps it is a British car since the editorial appeared in a London paper."

The article which we quoted was so lyrical that we assume the writer holds a poetic license. This department, ordinarily a stickler for accuracy, would nevertheless hesitate to ask a poet for his badge number.

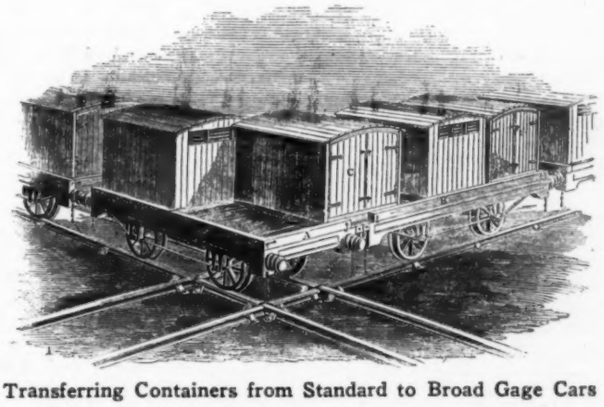
The Freight Container in 1846

"Container cars may be the most convenient and economical railway vehicles in which to transport l.c.l. shipments, but they are not new," writes Hiliary Leyendecker, enclosing an article from

A Container on the Highway

the Illustrated London News of June 29, 1846. This article describes an invention by a Captain Powell, of the Grenadier Guards, of a type of container suited for loading of railroad freight cars or for transportation on a wagon body over the highways.

The prime consideration behind this invention was the varying gage prevalent in England at the time, necessitating frequent trans-shipments. These containers were designed with rollers to rest on rails on the car bodies, so at the break of gage the con-



Transferring Containers from Standard to Broad Gage Cars

tainers could readily be rolled on to freight cars of the gage of the line on which they were to continue their movement.

One of the illustrations shown herewith, reproduced from a woodcut in the Illustrated London News article, shows the containers being moved from cars of one gage to those of another. The other illustration shows the containers mounted on the highway wagon body. Captain Powell, it is stated, felt that the container would be of great advantage for the movement of military supplies.

NEWS of the WEEK

Oil-Electric Locomotive Switching in C. & N. W. Freight Yard, Chicago

THE AMERICAN SHORT LINE RAILROAD ASSOCIATION is to hold its annual meeting at the New Willard Hotel, Washington, D. C., on December 8 and 9.

THE SIGNAL SECTION of the American Railway Association is to hold its annual meeting at the Stevens Hotel, Chicago, on Monday and Tuesday, March 5 and 6, 1928.

THE PACIFIC RAILWAY CLUB will hold its next meeting on November 10 at the Palace Hotel, San Francisco, Cal. The evening has been designated "Third Annual Associate Members' Night."

THE CAR FOREMEN'S ASSOCIATION of Chicago will hold its next meeting on November 14 at the Great Northern Hotel, when Samuel O. Dunn, editor of *Railway Age*, will address the members.

THE CANADIAN RAILWAY CLUB will hold its next meeting on November 8, when a paper will be read on "Transportation," by H. C. Taylor, superintendent of transportation, Eastern Lines, Canadian Pacific, Montreal.

THE CAROLINA SOUTHERN RAILWAY which extends from Windsor, N. C., northward 22 miles to Ahoskie, on the Atlantic Coast Line, is being changed from narrow to standard gage and it is announced that trains will begin running on November 2. It is proposed to run a passenger train twice daily, each way.

Investigation of Porters' Tips Asked

A detailed analysis of the pratcice of tipping Pullman porters is given in a brief filed with the Interstate Commerce Commission by the Brotherhood of Sleeping Car Porters, urging that the commission investigate the effect of the practice on the public service. The brief was filed as a reply to the motion of the Pullman Company to dismiss the complaint filed recently by the brotherhood.

"Petitioner's purpose in this proceeding," it says, "is to secure an investigation of practices believed unlawful. If the commission is convinced that said practices are unlawful or injurious to the public service, it has power to order them discontinued.

"Petitioner has made a prima facie case. The said practice produces, or tends to produce, multitudinous discriminations among passengers; and it is one of the bases of the wages and working conditions of said employees * * *"

Canadian Eyesight Rules

The code of rules for examination of the eyes of railway employees in Canada, which is an official document promulgated by the Board of Railway Commissioners, has been thoroughly revised, and the new form has been issued as general order No. 449. The great bulk of the changes have to do with the clarification of details of language. Clause 14, which requires special examination of enginemen who have less than 20-30 vision in either eye (without glasses) has been changed to make the requirement "less than 20-40."

Trees and Hedge as Snow Protection

Trees as a substitute for board snow and sand fences are being increasingly used by the Canadian Pacific. For the past ten years the C. P. R. has been carrying out this plan of tree-planting successfully. In 1916 almost 5,000 trees were planted on Eastern lines and these are now good-sized trees.

The Canadian Pacific has approximately 110 miles of evergreen hedge along its right of way. The cost of planting and care of these trees is said to be less than the cost of the fences and while it serves the useful purpose of keeping the railway cuts clear of snow, it also forms a compact and beautiful hedge, which adds materially to the beauty of the landscape.

New Canadian Engine Service Wage Schedules

The new wage schedules for engine service recently agreed to in Canada in general put the wages on the so-called "New York Central 1924 basis." Firemen in passenger service are paid from $4.56 to $5.76 for an 8-hour day depending on the type of locomotive; in freight service from $5.00 to $6.51; and from $5.28 to $6.64 in yard service. Outside hostlers receive $6.10, inside hostlers $5.50 and outside hostler's helpers $4.90.

Rates for passenger enginemen range from $6.16 to $7.16, for freight enginemen from $6.84 to $8.76 and for yard enginemen from $6.72 to $8.04. The guarantee for passenger enginemen is $7.00 per day. A differential is allowed for locomotives equipped with boosters.

These rates represent an increase of 24 cents per day in passenger service, 36 cents in freight service and 32 cents in yard service.

The Committee on Locomotive Design and Construction Requests Suggestions

The Committee on Locomotive Design and Construction of the Mechanical Division of the American Railway Association, in its report to the annual meeting held this year at Montreal, made certain recommendations under the general subject of design of fundamental parts of locomotives. The Committee wishes to enlarge on this subject during the coming year with a view of ultimately having definite standards for as many of the fundamental parts of locomotives as possible and is asking for suggestions as to what parts should be undertaken for standardization during the coming year. Any suggestions should be submitted to the offices of the A.R.A., located at Chicago.

Canadian Farmers Seek a Member on Railway Board

At an executive session held in Saskatoon the United Farmers of Saskatchewan adopted a resolution calling for agricultural representation on the Dominion Railway Board and on the Directorate of the Canadian National Railways. The resolution is as follows:

"As a matter of justice and equity, we, the executive board of the United Farmers of Canada, Saskatchewan section, strongly urge a reconstruction of the personnel of the Railway Commission so as to give the western provinces a more equal representa-

tion with eastern Canada, and that one such appointee be representative of western organized agricultural interests.

"Further that a copy of this resolution be sent to all western federal members with a view to soliciting their co-operation and support."

A similar resolution has also been passed asking representation of organized agricultural interests on the Board of Directors of the Canadian National Railways.

Opening of New Bridge at Bath, Maine

The new "Carlton bridge" for railroad and highway traffic across the Kennebec river between Bath and Woolwich on the Maine Central, 36 miles east of Portland, Me., was opened for railroad traffic on Monday, October 24; and the people of Bath and surrounding towns made a general holiday in celebration of the event. From Rockland, 48 miles east of Bath, a special train was run, bringing 870 passengers, including a brass band.

The formal opening of the bridge will not take place until November 15, as not until that date will it be ready for highway traffic, and the only ceremony on Monday was the cutting of a ribbon, stretched across the western end of the bridge, by a little girl held in the arms of Morris McDonald, president of the Maine Central.

The abolition of the car ferry at this point will save a half hour for every train.

The Carlton bridge is 2,220 ft. long and the total cost is $3,000,000. There is a lift span with towers 221 ft. high.

Automobiles Shipped to Europe Unboxed

The New York Central, at its piers in Weehawken, N. J., has just delivered to the steamship Schleswig-Holstein 800 automobiles destined for Antwerp, Copenhagen and other European cities; and these automobiles are on their own wheels and wholly uncovered. They were brought in this condition from the factories in Michigan and elsewhere and are put into the hold of the ship in the same condition. At the European port, their gasoline tanks will be filled and they are to be moved to their final destinations under their own power.

This experiment is based on a calculation that the ultimate expense will be less than that for knocking down the cars and enclosing body and parts in boxes. With the cars set up, only four can be put into an ordinary box car, instead of six as when in cases; but the saving in the labor of knocking down and reassembling and of the cost of materials for casing, is said to more than offset the increased freight bill.

N. C. & St. L. Service Buttons for 4000

More than 4,000 employees of the Nashville, Chattanooga & St. Louis were awarded buttons, emblematic of from 10 to 50 years' service, at a series of ten meetings held in September. T. A. Clarkson, secretary of the company, is credited with the largest part in the development of the idea of the service buttons, and with working out the attractive designs. Buttons are awarded for each five-year period of service, beginning with ten years and ending with half a century, the awards being made as of January 1 of each year. The designs bear various arrangements of stars and bars to typify the number of years served.

Special honor was given at all of the meetings to the veterans of half a century and more. There were 59 of these, a strikingly large number for a road with less than 10,000 employees.

Included among the half-century veterans were three pairs of brothers, D. A. and B. A. Tucker, conductors, John C. and Charles Petty, engineers, and Dan and Asa Joslin, bridge and building supervisors. A fourth pair of brothers, the Brakefields, conductors, have served almost a century. A striking fact about the Tucker family is that W. W. Tucker, father of D. A. and B. A., served the road 41 years, while two sons of the third generation are now in service with a combined record of more than 50 years.

New York State Grade Crossings

The Public Service Commission of New York, acting on programs which have been filed with it by the state Department of Public Works, proposes, during the week beginning October 31, to hold hearings in nine cities, on questions concerning 131 crossings. The estimated cost of these eliminations is upward of $12,500,000.

Hearings will be held at Syracuse Oct. 31 for crossings in Oswego, Cayuga, Onondaga, Cortland and Madison counties. At Utica November 1 for Oneida and Herkimer counties. At Watertown, November 2 for Jefferson and Lewis counties. At Canton, November 3 for St. Lawrence county. At Plattsburgh, November 4 for Essex, Clinton and Franklin counties. At New York City November 1 for Westchester and Rockland counties. At Albany November 2 for Montgomery, Schoharie, Otsego, Delaware, Greene, Columbia, Warren and Washington counties. At Newburgh, November 4 for Ulster, Dutchess, Sullivan, Orange and Putnam counties.

It appears that these hearings are to be held mainly for the purpose of learning whether or not each railroad, and each municipality, expects to borrow money from the state with which to pay its portion of the cost of any proposed improvement. Whether or not the public interest requires elimination of the crossing, will be taken up at some later hearing.

The State Transit Commission, having jurisdiction within New York City, is to hold hearings beginning November 14, on the proposals to eliminate 42 highway grade crossings in New York City, 39 of them on the Long Island and three on the New York Central.

James G. Brennan, City Engineer of Albany, has advised the Public Service Commission that the city objects to joining in the proposed $4,000,000 grade crossing elimination, within the city, of the Delaware & Hudson tracks. The city is already so close to the debt limit with pledged obligations of public improvements that the taking on of an additional $1,000,000 obligation (the city's fourth share of the project) would seriously handicap its program. The city cannot intelligently act until definite plans are decided upon in relation to the building of a new high level bridge connecting Albany and Rensselaer.

On October 26, the Public Service Commission extended the program above outlined by adding to the list 54 grade crossings which it is proposed to eliminate in 1928. Preliminary hearings are to be held at Rochester, November 7, and at Elmira, November 4.

Mechanical Division Adopts Changes in Arch Bar Trucks

Five propositions pertaining to arch bar trucks presented at the annual meeting of the Mechanical Division of the American Railway Association by the Committee on Car Construction, have been submitted to letter ballot and adopted by a small margin over the required two-thirds of the votes cast. On the five propositions, from 272 to 295 members, representing from 1,897,055 to 2,087,685 cars owned or controlled, voted in favor of the proposed changes in arch bar trucks, with from 46 to 69 members representing from 500,668 to 691,298 cars opposing and 65 members representing 131,401 cars not voting. In addition to the adoption of the changes to arch bar trucks, the association has approved as recommended practice, specifications pertaining to air, steam, cold water and fire hose and liquid paint dryer, proposed by the Committee on Specifications and Tests for Materials and the standard sizes of locomotive driving axles, engine truck and trailer axles, proposed by the Committee on Locomotive Design and Construction. Fourteen changes in the loading rules have been unanimously adopted by the association. The proposals of the Committee on Wheels with respect to gages, and of the Committee on Locomotive and Car Lighting, and Brakes and Brake Equipment with respect to details of lettering were adopted by an overwhelming majority.

Goggles Universal in Pullman Shops

A mandatory rule requiring every employee to wear goggles while at work is enforced in all the repair shops and yards of the Pullman Company, according to a statement made by Harry Guilbert, director of safety of the Pullman Company, in a recent address; and, says Mr. Guilbert, the eyes of approximately a thousand men have been saved from serious injury or destruction.

During the past 12 years Mr. Guilbert has "tried every conceivable method known to human ingenuity to get men to wear goggles, including spectacular bulletins, horrible examples, pleading and threatening; in fact, practically every known method of persuasion or education, but with very small results." But a rule stipulating dismissal as the penalty for disobedience is now being enforced in every repair shop of the company; and not only with respect

to employees; officers of the company and visitors are required to comply with it.

Mr. Guilbert cited records of the appalling losses due to eye injuries. In Pennsylvania alone the sight of 6,842 eyes has been completely destroyed in industrial accidents since 1916. In one year the employers of Pennsylvania paid more than $800,000 in compensation for eye injuries. The situation in New York State is even worse. The employers of this one state paid $1,700,000 for eye accidents last year. On the basis of the National Safety Council's estimate that the true cost of industrial accidents is five times the amount of the compensation payments to employees, the eye hazards of industrial occupations in New York alone cost that state—the employers, the employees and the public—more than $8,000,000 in one year.

The Pullman rule has been adopted in the face of ridicule, opposition, ignorance, indifference and the lack of co-operation on the part of the workmen themselves. Eye hazards of industrial occupations are today the most prolific source of blindness, being responsible for approximately 15 per cent of our entire blind population. Workmen must be trained to guard their eyes from the moment they are hired. It is imperative that the new workman be provided with goggles fitted to his particular nose before he starts on the job. The Pullman Company has expended about $75,000 for eye protection. This expenditure prevents loss of sight and saves money; it means better work and more of it; it inspires the workmen with confidence, for they can go about their duties without fear of flying slivers of steel, hot metal or splinters of wood.

"Consider this one fact; 40,000 glass eyes are imported by the United States each year; they are works of art and sometimes hard to distinguish from the real thing; they are good to look at, but impossible to look through. You can not see a thing with a glass eye."

Two Passengers Killed in Six Months

The summary of railroad accidents issued by the Interstate Commerce Commission for the half year ending with June, 1927, includes an unparalleled record; only two passengers killed in train accidents in the six months—one in a collision and one in a derailment.

In the period now reported two passengers, 82 employees and 40 other persons were killed in train accidents, and 776 passengers, 606 employees and 183 other persons were injured; making totals of 124 persons killed and 1,565 persons injured. In the corresponding half year of 1926 there were 22 passengers, 91 employees and 37 other persons killed, and 656 passengers, 732 employees and 269 other persons injured; making totals of 150 persons killed and 1,657 injured.

Adding the casualties from train service accidents and non-train accidents, the grand total of all classes this year is 3,294 killed and 53,124 injured as compared with 3,145 killed and 62,484 injured in the first half of 1926. The increase in killed, as compared with last year, is found wholly under the head of trespassers, the total number of non-trespassers killed being 11 less than in the earlier half year.

The totals of casualties at highway grade crossings this year were 1,062 persons killed and 2,901 injured, both items slightly less than last year. Of the 1,062 killed at crossings, 57 are classed as trespassers.

A bulletin issued by the American Railway Association refers to this remarkable record of safety to passengers in trains as showing the smallest number of fatalities reported "for the first half of any recent year." Records for individual months were not published in the earlier years of the Interstate Commerce Commission, but it is doubtless safe to say that no such favorable record has been made since the federal government first tabulated railroad accidents. Following is a list of the totals of passengers killed in train accidents for each 12 months from the beginning of the record (1889). It will be noted that prior to 1924 the only totals below 50 were recorded in the two years of lightest business—1895 and 1896.

Passengers Killed in Train Accidents on American Railroads—1889-1926

Years Ending Dec. 31		Years Ending June 30	
1926	79	1909	131
1925	98	1908	165
1924	49	1907	410
1923	54	1906	182
1922	106	1905	350
1921	110	1904	270
1920	95	1903	164
1919	110	1902	167
1918	286	1901	110
1917	131	1900	93
1916	111	1899	83
		1898	74
Years Ending June 30		1897	96
1916	141	1896	41
1915	89	1895	30
1914	86	1894	162
1913	181	1893	100
1912	139	1892	195
1911	142	1891	110
1910	217	1890	113
		1889	161

It will be noted that because of a change in the date of beginning the reporting year, one half of 1916 is included twice.

A.S.M.E. Annual Meeting Program Includes Many Railroad Papers

The program for the annual meeting of the American Society of Mechanical Engineers which will be held in the Engineering Societies' building, 29 West Thirty-ninth street, New York, December 5 to 8, inclusive, includes a large number of papers on subjects of interest to railroad men. The Railroad Division is scheduled for an all-day session, Tuesday, December 6, beginning at 9:30 a.m. Six papers are to be presented during the session of the Railroad Division which include the annual report of progress in railway mechanical engineering. In addition, the Oil and Gas Power Division will present a paper on Diesel locomotives during its session on Thursday afternoon, December 8. The following is a list of the papers and events which have been selected from the program of the annual meeting as being of interest to railroad men:

Tuesday, December 6—Morning

Vibration of Bridges, by S. Timoshenko (by title).

The Motor Truck and L. C. L. Freight, by F. J. Scarr.

Back Pressure and Cut-Off Adjustment for the Locomotive, by Thos. C. McBride.

Afternoon

Symposium on Plant and Equipment Maintenance by the Machine Shop Practice Division.

Heating and Ventilating of Passenger Cars, by Edward A. Russell.

Can Accident Prevention Be Reduced to a Science? by Thos. H. Carrow.

Address by W. E. Wickenden on What the National Engineering Societies Can Do for Engineering Education.

Evening

Presidential Address and Reception.

Award of Melville Medal to L. P. Alford.

Wednesday, December 7—Morning

The Development of Machine Tools from a User's Viewpoint, by F. C. Spencer.

Materials Handling as an Aid to Production, by Frank L. Eidmann.

Costs of Operation and Savings Effected by Electric Industrial Trucks and Tractors, by C. B. Crockett and H. J. Payne.

Afternoon

Education and Training for the Industries: Apprentice Training for Draftsmen, by C. J. Freund.

Principles of Apprenticeship Organization, by Ben S. Moffatt.

Reports from Bureau of Standards and M. I. T.

Ladies' Tea.

Evening

Annual Dinner.

Thursday, December 8—Afternoon

Boiler Feedwater (Joint Research Committee on Boiler Feedwater Studies and Power Division).

Diesel Locomotives, by R. Hildebrand.

Henry Robinson Towne Lecture: The Relationship Between Industry and Taxation—An Economist's Views of a Sound Program for American Business in the Field of Taxation, by Prof. T. S. Adams.

Space Assigned for National Railway Appliances Exhibit

A total of 173 railway supply companies have been assigned space for the annual exhibit of the National Railway Appliances Association to be held in the Coliseum, Chicago, on March 5 to 8 inclusive, 1928, as compared with 160 at the same time in 1927. Twenty-nine companies which did not have space in 1927 are included for next year. The exhibition will be held at the time of the 28th annual convention of the American Railway Engineering Association.

The names of the companies assigned space, as recorded by the secretary, C. W. Kelly, 825 South Wabash Avenue, Chicago, are as follows:—

A. C. Spark Plug Company, Flint, Mich.
Adams Motor & Manufacturing Co., Chicago.
Adams & Westlake Co., Chicago.
Air Reduction Sales Company, New York.
American Cable Company, Inc., New York.
American Casting Company, Birmingham, Ala.
American Chain Company, Inc., Bridgeport, Conn.
American Fork & Hoe Co., Cleveland, Ohio.
American Hoist & Derrick Co., St. Paul, Minn.
American Railway Hydrant & Valve Co., Stapleton, S. I., N. Y.
American Steel & Wire Co., Chicago.
American Valve & Meter Co., Cincinnati, Ohio.
Ames Shovel & Tool Co., Boston, Mass.
Anchor Co., Milwaukee, Wis.
Armco Culvert Manufacturers Association, Middletown, Ohio.
Baker-Raulang Company, Cleveland, Ohio.
Barber Asphalt Company, Philadelphia, Pa.
Barrett Company, New York.
Beall Brothers, Alton, Ill.
Beall Tool Company, East Alton, Ill.
Bethehem Steel Company, Bethlehem, Pa.
Binks Spray Equipment Company, Chicago.
Blaw-Knox Company, Pittsburgh, Pa.
Brach Manufacturing Company, L. S., Newark, N. J.
Brown Rail Loader Company, Boston, Mass.
Buda Company, Harvey, Ill.
Carbic Manufacturing Company, Duluth, Minn.
Carey Company, Phillip, Cincinnati, Ohio.
Carnegie Steel Company, Pittsburgh, Pa.
Carter Bloxonend Flooring Company, Kansas City, Mo.
Celotex Company, Chicago.
Chicago Bridge & Iron Works, Chicago.
Chicago Pneumatic Tool Company, New York.
Chicago Railway Signal & Supply Co., Chicago.
Chipman Chemical Engineering Company, Inc., Bound Brook, N. J.
Clark Car Company, Pittsburgh, Pa.
Clevelend Frog & Crossing Co., Cleveland, Ohio.

Cleveland Pneumatic Tool Company, Cleveland, Ohio.
Cleveland Railway Supply Company, Cleveland, Ohio.
Copperweld Steel Company, Rankin, Pa.
Creepcheck Company, Inc., Hoboken, N. J.
Crerar, Adams & Co., Inc., Chicago.
Cullen-Friested Company, Chicago.
Curtin-Howe Corp., New York.
Cyclone Fence Company, Waukegan, Ill.
Dearborn Chemical Company, Chicago.
Detroit Graphite Company, Detroit, Mich.
De Vilbiss Company, Toledo, Ohio.
Dickinson, Inc., Paul, Chicago.
Dilworth, Porter & Co., Pittsburgh, Pa.
Duff Manufacturing Company, Pittsburgh, Pa.
Edison Storage Battery Company, Orange, N. J.
Edison, Thos. A., Inc., Bloomfield, N. J.
Electric Storage Battery Company, Philadelphia, Pa.
Electric Tamper & Equipment Co., Chicago.
Elwell-Parker Electric Co., New York.
Engineering News Record, New York.
Fairbanks, Morse & Co., Chicago.
Fairmont Railway Motors, Inc., Fairmont, Minn.
Frog, Switch & Manufacturing Co., Carlisle, Pa.
General Electric Company, Schenectady, N. Y.
General Railway Signal Company, Rochester, N. Y.
Handlan-Buck Manufacturing Company, St. Louis, Mo.
Hayes Track Appliance Company, Richmond, Ind.
Hazard Manufacturing Company, Wilkes-Barre, Pa.
Headley Good Roads Company, Philadelphia, Pa.
Howlett Construction Company, Moline, Ill.
Hubbard & Co., Pittsburgh, Pa.
Illinois Steel Company, Chicago.
Ingersoll-Rand Company, New York.
Insulite Company, Minneapolis, Minn.
Jeandron, W. J., New York.
Jewell Electrical Instrument Company, Chicago.
Johns-Manville Corp., New York.
Jordan, O. F., Company, East Chicago, Ind.
Kalamazoo Railway Supply Company, Kalamazoo, Mich.
Kentucky Rock Asphalt Company, Louisville, Ky.
Kerite Insulated Wire & Cable Co., Inc., New York.
Keystone Grinder & Manufacturing Co., Pittsburgh, Pa.
Koppel Industrial Car Company, Pittsburgh, Pa.
Layne & Bowler Manufacturing Co., Memphis, Tenn.
Lebanon Steel Foundry, Lebanon, Pa.
Lehon Company, Chicago.
Locomotive Finished Material Company, Atchison, Kans.
Lorain Steel Company, Johnstown, Pa.
Louisville Frog & Switch Co., Louisville, Ky.
Lufkin Rule Company, Saginaw, Mich.
Lundie Engineering Corp., New York.
Lundy Company, E. A., Pittsburgh, Pa.
MacLean-Fogg Lock Nut Company, Inc., Chicago.
MacRae's Blue Book Company, Chicago.
Magnetic Signal Company, Los Angeles, Cal.
Maintenance Equipment Company, Chicago.
Malleable Screw Products Company, Cincinnati, Ohio.
Massey Concrete Products Corp., Chicago.
Mechanical Manufacturing Company, Chicago.
Metal & Thermit Corp., New York.
Miller Train Control Corp., Danville, Ill.
Morden Frog & Crossing Works, Chicago.
Morrison-Knudsen Company, Boise, Idaho.
Mudge & Co., Chicago.
Murdock Manufacturing & Supply Co., Cincinnati, Ohio.
National Boiler Washing Company of Ill., Chicago.
National Carbon Company, New York.
National Lead Company, New York.
National Lock Washer Company, Newark, N. J.
National Safety Appliance Company, Chicago.
National Vulcanized Fibre Company, Wilmington, Del.
Nelson, B. F., Manufacturing Company, Minneapolis, Minn.
Nichols, George P., & Bro., Chicago.
Nordberg Manufacturing Company, Milwaukee, Wis.
Northwest Engineering Company, Chicago.
Northwestern Motor Company, Eau Claire, Wis.
Ogle Construction Company, Chicago.
Ohio Brass Company, Mansfield, Ohio.
Ohio Valley Rock Asphalt Company, Inc., Louisville, Ky.
Okonite-Callender Company, Inc., Passaic, N. J.
Okonite Company, Passaic, N. J.
Oxweld Railroad Service Company, Chicago.
Paasche Airbrush Company, Chicago.
Page Steel & Wire Co., Bridgeport, Conn.
Parsons Company, Newton, Iowa.
Patterson Company, W. W., Pittsburgh, Pa.
P. & M. Company, Chicago.
Pocket List of Railroad Officials, New York.
Positive Rail Anchor Company, Chicago.
Pettibone-Mulliken Company, Chicago.
Pyle-National Company, Chicago.
Q. & C. Co., New York.
Racine Tool & Machine Co., Racine, Wis.
Rail Joint Company, New York.
Railroad Accessories Corp., New York.
Railroad Supply Company, Chicago.
Railway Maintenance Corp., Pittsburgh, Pa.
Railway Purchases & Stores, Chicago.
Ramapo Ajax Corp, Hilburn, N. Y.
Rawls Manufacturing Company, Chicago.
Reade Manufacturing Company, Jersey City, N. J.
Reed-Prentice Corp., Worcester, Mass.
Reliance Manufacturing Company, Massillon, Ohio.
Richards-Wilcox Manufacturing Company, Aurora, Ill.
Roberts Company, George J., Dayton, Ohio.
Robertson Company, H. H., Pittsburgh, Pa.
Robertson & Co., William, Chicago.
Roberts & Schaefer Co., Chicago.
Sears, Roebuck & Co., Chicago.
Sellers Manufacturing Company, Chicago.
Signal Accessories Corp., Utica, N. Y.
Simmons-Boardman Publishing Company, New York.
Sivyer Steel Casting Company, Milwaukee, Wis.
Skelton Shovel Company, Inc., Dunkirk, N. Y.
Snap-On Wrench Company, Chicago.
Snow Construction Company, T. W., Chicago.
Southern Signal Company, Louisville, Ky.
Standard Oil Company, New York.
Syntron Company, Pittsburgh, Pa.
Templeton, Kenly & Co., Ltd., Chicago.
Torchweld Equipment Company, Chicago.
Union Switch & Signal Co., Swissvale, Pa.
U. S. Wind Engine & Pump Co., Batavia, Ill.
Universal Generator Company, Blossburg, Pa.
Verona Tool Works, Pittsburgh, Pa.
Warren Tool & Forge Co., Warren, Ohio.
Waterbury Battery Company, Waterbury, Conn.
Weir, Kilby Corp., Cincinnati, Ohio.
Western Wheeled Scraper Company, Aurora, Ill.
Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.
Weston Electrical Instrument Corp., Newark, N. J.
Wharton & Co., Inc., Wm., Jr., Easton, Pa.
Wood Conversion Company, Chicago.
Woodings Forge & Tool Co., Verona, Pa.
Wolery Machine Company, Minneapolis, Minn.
Wyoming Shovel Works, Wyoming, Pa.

Manufacturers of Bridge and Building Materials Present Exhibit

The exhibit of bridge and building materials presented by the Bridge and Building Supply Men's Association at the Hotel Nicollet, Minneapolis, during the convention of the American Railway Bridge and Building Association on October 18-20, (as presented on preceding pages of this issue) exceeded that of any previous year in the number of exhibitors and also in the practical character of the exhibits, more companies presenting full size equipment than at any previous convention. The exhibits were also presented in a more attractive manner, adding thereby to their educational value.

The officers who served this association during the past year were as follows: President, John E. Nelson, Joseph E. Nelson & Sons, Chicago; vice-president, B. J. Wilson, The Pocket List of Railroad Officials, Chicago; treasurer, F. M. Condit, Fairbanks Morse & Co., Chicago; secretary, D. A. Hultgren, Massey Concrete Products Corporation, Chicago, honorary director, Dan J. Higgins, American Valve & Meter Co., Chicago; members of executive committee: O. T. Snow, T. W. Snow Construction Company, Chicago; W. D. Waugh, Detroit Graphite Company, St. Louis, Mo.; R. F. Repasz, William Robertson Company, Inc., Chicago; D. A. Evans, Kaustine Company, Inc., Perry, N. Y.; G. C. Mills, Zitterell-Mills Company, Webster City, Iowa, and P. C. Jacobs, Johns-Manville Corp., Chicago.

At the annual election of officers held on Thursday morning, the following were selected to serve for the ensuing year: President, B. J. Wilson, The Pocket List of Railroad Officials, Chicago; vice-president, F. M. Condit, Fairbanks Morse & Co., Chicago; treasurer, D. A. Hultgren, Massey Concrete Products Corporation, Chicago; secretary, W. D. Waugh, Detroit Graphite Company, St. Louis, Mo.; honorary director, John E. Nelson, Joseph E. Nelson & Sons, Chicago, members executive committee: R. F. Repasz, William Robertson Co., Inc., Chicago; D. A. Evans, Kaustine Company, Inc., Perry, N. Y.; G. C. Mills, Zitterell-Mills Company, Webster City, Iowa; P. C. Jacobs, Chicago; W. D. Bennett, Dearborn Chemical Company, Chicago, and J. M. Rutherford, Railway Age, Chicago.

The companies exhibiting, together with the nature of their exhibits and the names of their representatives, follow:

American Hoist & Derrick Co., St. Paul, Minn.; literature and photographs of locomotive pile drivers, three-speed gasoline crane with automotive gear shift, gasoline supply train crane and locomotive ditcher; D. L. O'Brien, J. J. Cox, E. P. Brown and Miss H. M. Hoeller.

American Railway Hydrant & Valve Company, Stapleton, S. I., N. Y.; stock yard cocks, hog drenchers, coach yard hydrants, also literature and blue prints; W. Volkhardt.

American Tar Products Company, Pittsburgh, Pa.; literature and photographs; Parker T. Spinney and S. J. Katz.

American Valve & Meter Company, Cincinnati, Ohio; model of Poage water column with telescopic spout and literature on railway water service; J. T. McGarry and Dan J. Higgins.

Barco Manufacturing Company, Chicago; flexible ball joints and lubricated plug valves; Frank B. Nugent and W. C. Motter.

Barrett Company, New York; roofing materials and literature; F. S. Nichols and J. E. Haynes.

Beaver Products Company, Inc., Buffalo, N.Y.; roofing, wallboard, plaster, shingles and literature; H. M. Butters.

Binks Spray Equipment, Chicago; paint spraying equipment; F. Van de Bogart.

Carter Bloxonend Flooring Company, Kansas City, Mo.; samples of built-up wood block flooring, literature and photographs; A. W. Giese and C. J. Carter.

Celotex Company, Chicago; exhibit showing Celotex used as sheathing, as plaster base, under finished flooring as a sub-floor; Acousti-Celotex used for sound treating in wire and telephone rooms and special board insulation for refrigerator cars; J. H. Bracken and E. E. Kelly.

Chicago Bridge & Iron Works, Chicago, photographs and literature of water tanks; E. P. Shelton.

Cullen Friestedt Company, Chicago; moving picture of steel burro crane and 180 deg. swing crane; Thomas D. Crowley, E. V. Cullen and F. J. Reagan.

Dearborn Chemical Company, Chicago; samples of chemically compounded rust preventive and photographs of actual use; C. F. Barham, Jr., and W. D. Bennett.

Detroit Graphite Company, Detroit, Mich.; literature; W. D. Waugh, L. F. Flanagan, L. D. Mitchell and A. B. Edge.

Detroit Steel Products Company, Detroit, Michigan.

DeVilbiss Company, Toledo, Ohio; paint spray equipment for bridges and buildings; E. G. Whitmore, E. F. Holly and G. H. Buzzard.

Dickinson, Paul, Inc., Chicago; models of cast iron camp car jack, ventilators and chimneys for small buildings, scuppers, smoke protection plates, exhaust heads and cast iron roof drains; A. J. Filkins and A. E. Engman.

Dixon Crucible Company, Joseph, Jersey City, N. J.; paint literature; H. A. Nealley and P. H. Griffin.

Duff Manufacturing Company, Pittsburgh, Pa.; bridge jacks; C. N. Thulin.

Dunham Company, C. A., Chicago; thermostatic radiator traps, float traps, strainers, radiator valves, medium pressure traps and lift fittings; C. E. Roscoe.

Fairbanks, Morse & Co., Chicago; literature; F. M. Condit, G. Howard, B. S. Spaulding, T. H. Gilleland, Charles H. Wilson, E. C. Galloday, H. J. Smith, J. C. Flanagan and F. C. Lee.

Fairmont Railway Motors, Inc., Fairmont, Minn.; bridge and building motor car engine (cutaway model), wheel, axle and bearing display stand; W. D. Brooks, E. R. Mason, K. K. Cavins and C. F. Green.

Federal Engineering Company, Chicago; Joseph A. Nelson.

Hastings Signal & Equipment Company, Boston, Mass.; automatic tell-tale hanger and replacer and side clearance; Joseph E. Freeling and R. W. Hastings.

High Grade Manufacturing Company, Cleveland, Ohio; literature and samples of roofing cement; S. A. Baber and J. N. Kinn.

Ingersoll Rand Company, New York; safety saw and literature on bridge repair and maintenance of way outfits; G. W. Morrow.

Insulite Company, Minneapolis, Minn.; wood fibre insulation board; D. D. Grassick.

Jennison-Wright Company, Toledo, Ohio; Kreolite wood blocks.

Johns-Manville Corporation, New York; samples of roofing, pipe and boiler insulations, packing, shingles, corrugated siding and roofing, waterproofing, industrial flooring and smoke jacks; H. Flanagan, W. H. Lawrence and J. C. Younglove.

Johnson, Edward E., Inc., St. Paul, Minn.; well screens; G. E. Bodien and E. E. Johnson.

Jones Paint Company, The, Rome, N. Y.; liquid and plastic roofing cement; A. deWolfe Jones.

Jordan Company, O. F., East Chicago, Ind.; literature on ballast spreader and track oiler; A. L. Greenabaum, C. H. Staples, H. W. Pretzeller and J. C. Forbes.

Kaustine Company, Inc., Perry, N. Y.; literature on chemical toilets and septic tanks; Charles F. Smale and D. A. Evans.

Knickerbocker Roofing & Paving Co., Chicago; Mark Cronin.

Lehon Company, Chicago; samples of asphalt roofing and shingles, waterproofing and roof coatings and asbestos shingles; Tom Lehon, J. W. Shoop, M. F. Clarity and John E. Eipper.

Lewis Asphalt Engineering Corporation, New York; samples of waterproofing and literature; H. O. Johnson and A. C. Hanson.

Lowe Brothers Company, Dayton, Ohio; Langley Ingraham.

Massey Concrete Products Corporation, Chicago; photographs and literature of reinforced concrete products; D. A. Hultgren, W. Lyle McDaniel and C. H. Hunsaker.

Mudge & Co., Chicago; Class W engine and two-speed transmission used on Mudge W.S.-3 heavy duty cars and Mudge Class C.-1 centerlight motor car; Clyde P. Benning, Achille P. Grenier and Arthur R. Fletcher.

Murdock Manufacturing & Supply Company, The, Cincinnati, Ohio; hydrants, railway water service box and drinking fountains; J. C. Endebrock.

National Lead Company, New York; truss bridge model showing red lead coatings; F. E. Dodge, F. M. Hartley, Jr., A. H. Sabin, W. S. Carlisle and S. A. Bushnell.

Nelson Manufacturing Company, B. F., Minneapolis, Minn.; insulation and roofing material; E. H. Mortimer, E. R. Nelson, E. H. Batchelder, Jr., K. T. Batchelder, G. M. Houghton and James Lowe.

Nelson & Sons, Joseph E., Chicago; literature and photographs; John E. Nelson, I. B. Tanner, D. O. Dugger and Walter Bennett.

Northwestern Motor Company, Eau Claire, Wis.; A. H. Nelson.

Norton, A. O., Inc., Chicago; bridge jacks; R. J. McKay.

Otley Paint Company, Chicago; paints, varnishes and enamels; Walter A. Otley, R. M. Chissom and Mark Clarity.

Patterson Company, W. W., Pittsburgh, Pa.; tackle blocks; W. W. Patterson, Jr.

Patterson-Sargent Company, Cleveland, Ohio; G. H. Anderson, W. H. McBride and L. J. McCombs.

Phelps-Drake Company, Minneapolis, Minn.

Pittsburgh-Des Moines Steel Company, Pittsburgh, Pa.; literature; I. A. Bickelhaupt and James L. Dailey.

Pittsburgh Plate Glass Company, Paint & Varnish division, Milwaukee, Wis.; paints; H. J. Brand.

Pocket List of Railroad Officials, New York; copies of publication; B. J. Wilson.

Polaris Concrete Products Company, West Duluth, Minn.; E. H. Dresser and T. O. McLeod.

Railroad Water & Coal Handling Company, Chicago.

Robertson Company, H. H., Pittsburgh, Pa.; samples of protected metal roofing and siding, permanent forms, ventilators, skylights, sash, sheet lights and literature; J. R. Sexton and T. C. Russell.

Robertson & Co., William, Chicago; cinder conveyor literature; R. F. Repasz and William Robertson.

Ruberoid Company, New York; C. H. McCormick.

Sherwin-Williams Company, Cleveland, Ohio; Arthur Larkins.

SiFo Products Company, St. Paul, Minn; roofing materials; E. D. Langan and G. L. Nye.

Simmons-Boardman Publishing Company, New York; copies of Railway Engineering and Maintenance, Railway Age and Railway Engineering and Maintenance Cyclopedia; E. T. Howson, F. C. Koch and J. M. Rutherford.

Snow Construction Company, T. W., Chicago; literature; O. T. Snow.

Templeton, Kenly & Co., Ltd., Chicago; bridge jacks, pipe pusher and bell base screw jacks; J. L. Crowley.

U. S. Wind Engine & Pump Company, Batavia, Ill.; literature on tanks, steel towers, water columns, pumps, tank fixtures, float valves and tank appurtenances; C. E. Ward.

Wood Conversion Company, Cloquet, Minn.; Balsam wool insulation, Balsam wool acoustical treatment and wood fibre insulating board; D. H. Corlette and W. E. Wheelock.

Woolery Machine Company, Minneapolis, Minn.; heavy duty 10-hp. motor car; H. A. Rogers, H. E. Woolery, D. A. Woolery and C. E. Berg.

Zitterell-Mills Company, Webster City, Iowa; photographs; J. A. Bateman.

Traffic

Governor Byrd, of Virginia, has sent letters to the governors of Michigan, Minnesota, North Dakota, South Dakota, and Iowa, calling their attention to the present situation in regard to freight rates on coal which, it is charged, is due to the action of the Interstate Commerce Commission in forbidding the railroads of Virginia—the Chesapeake & Ohio, the Norfolk & Western and the Louisville & Nashville—to reduce their rates in competition with Pennsylvania coal. Governor Byrd, deeming public protest necessary, urges the governors to take action.

Secretary of War Davis has requested the Department of Commerce to make a survey of the facilities now operated by the Inland Waterways Corporation on the Mississippi and Warrior rivers with a view to ascertaining the amount of traffic that could be efficiently handled with the existing equipment and to obtaining information as to possible expansion of the service. Such a survey was recommended by the advisory board of the corporation after receipt of an appeal from shippers of the Middle West for a recommendation that Congress increase the capitalization of the corporation to $50,000,000 to provide for increased service.

California Grape Traffic

Grape shipments from California have aggregated 60,232 carloads to and including October 19, as compared with 51,350 during the same period of 1926 and 56,924 in 1925, the year in which the peak movement occurred. More than 20,000 carloads are still on the vines or are ready for shipment, although not all of these may be shipped, in view of adverse weather and a small surplus of grapes on the market which has resulted in a slight decline in prices. Daily shipments for the week of October 8 to 15 averaged close to 1,300 cars, without such wide fluctuations as occurred in September.

Reduction of Wheat and Flour Rates Proposed to Meet Canadian Rates

A proposal that the Interstate Commerce Commission be directed by Congress to make a reduction of freight rates on export wheat and flour to meet a reduction recently ordered by the Canadian Board of Railway Commissioners has been made to members of Congress from Kansas by Clyde M. Reed, on behalf of a number of Kansas farm organizations, and Representative Hoch has responded with a statement that he is in favor of such legislation if the commission is not already possessed of the power. Mr. Reed, in his letter, said that the effect of the existing rate situation in Canada, plus the changes ordered by the Canadian commission, is to give the Canadian farmer substantially 50 per cent of the transportation rate in effect from Kansas either to lake or to gulf ports on wheat or flour for export, and that the disadvantage imposed upon the Kansas farmer is not less than 10 cents a bushel.

Southwestern Lines Ask Reconsideration of I. C. C. Order

A petition asking the Interstate Commerce Commission for a reconsideration, modification and interpretation of its decision in the consolidated southwestern freight rate cases, in which it prescribed an extensive readjustment, has been filed with the commission by the southwestern lines, asserting that the order would result in drastic reductions of their freight revenues although all parties to the cases disclaimed any intention of bringing about a reduction in the aggregate.

The carriers state that the showing made in the petition should convince the commission, even without a traffic or revenue test, that the rates prescribed should not in fairness be put into effect. In addition to many other modifications urged the carriers ask the commission to increase by 10 per cent the basic rates prescribed from and to all points.

Southern Roads Object to Differentials for Government Barge Line

Dismissal of the complaint filed with the Interstate Commerce Commission by the Inland Waterways Corporation, in which it asks the commission to require the establishment of joint freight rates and through routes in connection with its barge line between Mobile and New Orleans and points in Virginia, the Carolinas, Georgia and Tennessee on the lines of the Southern Railway system, is asked by the Southern and other southeastern railroads that have intervened in the case.

They say that the railroads have in the past joined the barge line in differential rates to a far greater extent than was justified but that such rates did not result in the widespread maladjustments that would follow the adjustment now sought. The railroads' brief particularly objects to the proposal that the joint rates be made on the basis of a 20 per cent differential under all-rail rates; for the barge line's share of the joint hauls would be so short that interchange and other expenses would offset any possible lower cost of water transportation and thereby render the barge-and-rail routes uneconomical.

The barge service on the Warrior river is owned and operated by the government, not as a permanent governmental undertaking, but to test the possibilities of transportation by barge line; and, says the brief, it would seem that after nine years of deficits at least some opportunity has been afforded to test the possibilities of the water transportation at differential rates. It is observed that there has been no improvement in the results of operation since January 1, 1924, and that, taking into account the expenditures made for improving the rivers and the losses sustained by the barge line, every ton of freight transported by water on the Black Warrior, Warrior and Tombigbee rivers since the improvements began in 1893 has cost the government $2.74.

Equipment and Supplies

Locomotives

THE ESTHONIA STATE RAILWAYS plan to purchase five new locomotives and 67 cars.

THE UNITED FRUIT COMPANY is inquiring for from 1 to 20 oil electric locomotives of the 242-242 type.

THE CANADIAN NATIONAL is inquiring for 10 eight-wheel switching locomotives, for service on the Grand Trunk Western lines.

THE CHICAGO, SOUTH SHORE & SOUTH BEND has ordered two 80-ton electric locomotives from the Baldwin Locomotive Works. Electrical equipment will be furnished by the Westinghouse Electric & Manufacturing Co.

THE COLOMBIAN GOVERNMENT.—According to a report from Albert E. Ellis, assistant trade commissioner of the Department of Commerce, Bureau of Foreign and Domestic Commerce, Bogota, Colombia, the Colombian Government will receive bids on November 11 for 9, 2-6-2 type locomotives, with tenders. Seven of the locomotives are to be of 3-ft. gage and two of one meter gage. Bids are also being asked, until November 25, for 9 first class passenger cars, 12 second class passenger cars, 2 sleeping cars, 4 open cars, and 2 cattle cars. The Bogota office of the Department of Commerce is at Edificio del Banco de Colombia, Carrera 8, Bogota, Colombia.

Freight Cars

SEE COLOMBIAN GOVERNMENT above.

SEE ESTHONIA STATE RAILWAYS above.

THE HAUSER-STANDER TANK COMPANY, Cincinnati, Ohio, is inquiring for 20 flat cars of 40 tons' capacity.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA has rejected the bids received for 250 all steel general service cars and is expected to issue new inquiries. Inquiry reported in the *Railway Age*, issue of October 8.

Passenger Cars

SEE COLOMBIAN GOVERNMENT above.

THE CHICAGO & EASTERN ILLINOIS is inquiring for two combination mail and smoking cars.

THE FERROCARRIL DEL PACIFICO (Colombia) has ordered 15 first class passenger cars and 10 second class passenger cars from the American Car & Foundry Co.

THE RICHMOND, FREDERICKSBURG & POTOMAC ordered one combination passenger and baggage, double power plant, gas-electric rail motor car and one all-passenger trailer car from the J. G. Brill Company. Inquiry for the motor car was reported in *Railway Age*, September 24.

Iron and Steel

THE ERIE is inquiring for about 46,000 tons of rail of 110-lb., R. E. sections.

THE NORTHERN PACIFIC is inquiring for 600 tons of Sandberg Sorbitic steel rail.

THE PENNSYLVANIA is inquiring for 100 tons of steel for a bridge at Fernwood, Pa.

THE ERIE has ordered 100 tons of steel for a bridge to be built at Griffith, Ind., from the American Bridge Company.

THE READING has ordered 35,500 tons of 130-lb. rail from the Bethlehem Steel Company and the Carnegie Steel Company.

THE CHESAPEAKE & OHIO is inquiring for 7,500 tons of steel for the main span of the Ohio river bridge, at Cincinnati, Ohio.

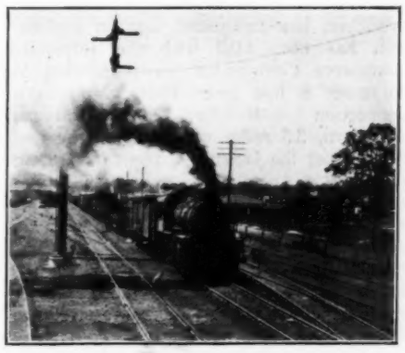
THE DELAWARE & HUDSON has ordered about 1,300 tons of 90-lb. A. S. C. E. section, Sandberg Sorbitic steel rail, from the Bethlehem Steel Company.

Signaling

THE ATLANTIC CITY RAILROAD has ordered from the Union Switch & Signal Company a mechanical interlocking for the crossing of the West Jersey & Seashore at Cape May, N. J.

THE ATLANTIC COAST LINE has ordered from the Union Switch & Signal Company an electro-mechanical interlocking for Thomasville, Ga.; 11 mechanical levers, six electric. Also, an interlocking for Orlando, Fla., where it crosses the Seaboard Air Line.

THE ATCHISON, TOPEKA & SANTA FE has contracted with the General Railway Signal Company for an electric interlocking to be installed at Orwood, Cal., for the protection of a lift bridge; also another electric interlocking for Orwood, an eight-lever machine.



A Freight Train on the L. & N.

Supply Trade

The Standard Coupler Company has removed its office from 110 East Forty-second street to 420 Lexington avenue, New York City.

John F. Schurch, chairman of the board of directors of **Manning, Maxwell & Moore, Inc.**, New York, has resigned, effective November 1.

H. B. Wilson has been appointed southwestern sales manager of the railroad division of the **Morton Manufacturing Company,** with headquarters at 915 Olive Street, St. Louis, Mo.

The American Manganese Steel Company, Chicago, has purchased the foundry of the **American Brake Shoe & Foundry Company** at Burnside, Ill., and will begin operations in it on January 1, 1928.

The Rollway Bearing Company, Inc., Syracuse, N. Y., has opened a sales office at 956 Leader Building, Cleveland, O. **R. D. Faris** has been appointed Cleveland district representative with headquarters at the above address.

The Kearney & Trecker Corporation, Milwaukee, Wis., has let a contract for a new 75 ft. by 176 ft. addition to its plant, providing 13,400 sq. ft. of floor space to take care of its increasing business. Several new machine tools have also been recently purchased.

E. A. Thornwell of Atlanta, Ga., has been appointed representative for Georgia, and eastern Tennessee of the **Lincoln Electric Company,** Cleveland, O. Mr. Thornwell has been actively associated with the electric industry since 1904. **John Van Horn,** factory engineer for the Lincoln Electric Company, has been transferred to the Atlanta office to assist Mr. Thornwell.

J. F. Prettyman & Sons recently put in operation its new modern wood preserving plant at Charleston, S. C., which has been under construction since January of this year. This new plant, which covers an area of 48 acres, has capacity for treating 55,000,000 to 100,000,000 board feet of timber annually and provides space for the storage of over 1,000,000 ties in addition to a large area for the seasoning and storage of piles, poles and other timber. The plant is served by over 6.5 miles of standard gage tracks and is fully equipped to handle all classes of timber framing. About November 15, it is expected that a new tie adzing and boring plant, now under construction, will be put in service.

Obituary

H. L. Brown, secretary of the Ohio Brass Company, Mansfield, Ohio, died on October 23.

George Stanton, manager of sales of the Cleveland Frog & Crossing Co., Cleveland, Ohio, died on October 20 at his home, Cleveland, Ohio. Mr. Stanton's association with railroad work began about 40 years ago, when he was with the Grand Rapids & Indiana, (now a part of the Pennsylvania). He then went into sales work which line he followed for upwards of 35 years, being connected with the U. S. Wing Engine Company of Batavia for a considerable period, and later with the Q & C Company, of Chicago, for nearly ten years. Early in 1904 he went with the Cleveland Frog & Crossing Co., as manager of sales and continued in that capacity

George Stanton

until his death. Mr. Stanton in 1905 served as a member of the executive committee of the Road & Track Supply Association. He was instrumental in bringing about, in March, 1909, the first exhibit of this association in the Coliseum at Chicago during the convention week of the American Railway Engineering & Maintenance of Way Association, now the American Railway Engineering Association, at which time Mr. Stanton was serving as president of the Road & Track Supply Association, now the National Railway Appliance Association. He later served again as a member of the executive committee in 1910 and 1911.

Trade Publications

FIN FURNACE CATALOGUE.—The Combustion Engineering Corporation, 200 Madison avenue, New York, describes in Catalogue FF-2 the C-E Fin water-cooled furnace designed for application to stationary boilers of almost any size. Illustrations of plant layouts and setting drawings show a trend in boiler and furnace design.

PULVERIZERS.—Catalogue J, a 22-page illustrated booklet descriptive of the details of construction and operation of the Bethlehem pulverizer, has been issued by the Bethlehem Steel Company, Bethlehem, Pa. The pulverizer is a dry grinding machine of the table roller type, designed for the grinding of dry materials, particularly coal, to any fineness up to 325 mesh.

Construction

ALABAMA & WESTERN FLORIDA.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension of 12.5 miles from Chipley to Graceville, Florida.

BIG SANDY & CUMBERLAND.—This company, a subsidiary of the Norfolk & Western, has applied to the Interstate Commerce Commission for authority for the construction of an extension to be known as the Home Creek branch, from a point near Hurley, Va., to a point on the east bank of Levisa Fork of the Big Sandy river near the mouth of Home Creek, Buchanan county, Va., 14.08 miles, at an estimated cost of $3,650,000, and also for the reconstruction and operation as a standard gage railroad of 13.5 miles of industrial tracks on the Levisa river, 13.3 miles, at an estimated cost of about $2,340,000.

CENTRAL OF NEW JERSEY.—This company has let a contract for the construction of a power house at its new engine terminal at Bethlehem, Pa., to cost $55,915, to Joseph E. Nelson & Sons.

CHESAPEAKE & OHIO.—A contract for the construction of a water treating plant at Economy, Ind., has been awarded to the Railroad Water & Coal Handling Company, Chicago.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—This company is receiving bids for the construction of a frame addition to its freight station at Bedford, Ind., at an estimated cost of $15,000.

ERIE.—This road has made plans for a steel bridge on its line at a point near Griffith, Ind.

MISSOURI & NORTH ARKANSAS.—A contract has been let to the List & Weatherly Construction Co., Kansas City, Mo., for the reconstruction of a pivot pier and the installation of a 300-ft. draw span in the bridge over the White river at a point on the line near Georgetown, Arkansas.

MISSOURI PACIFIC.—L. W. Baldwin, president, has announced that an application has been filed with the Interstate Commerce Commission for permission to construct a line from Illmo, Mo., to a connection with the Cape Girardeau Northern, 3.3 miles, and to purchase and reconstruct the latter line from its present terminus at Ancell, Mo., to a point 2 miles beyond Cape Girardeau, 7 miles. This will provide the Missouri Pacific with an entrance into Cape Girardeau. The Cape Girardeau Northern, which is now in the hands of receivers, discontinued service into Cape Girardeau several years ago after river overflows and consequent erosions made its tracks unfit for use by rolling equipment.

NORTHERN PACIFIC.—A contract for the reconstruction of two sections of the roundhouse at Glendive, Mont., with brick and reinforced concrete to provide 14 stalls with a length of 135 ft. each has been let to Charles Skooglun, St. Paul, Minn. Two of the stalls will be equipped with drop pits for handling truck, trailer and tank wheels. The total estimated cost of the improvement is $147,000. The contract for the construction of a new line along the Bitter Root river between Florence, Mont., and Hamilton, about 25 miles, has been awarded to the Morrison-Knudsen Company, Boise, Idaho. This project involves the removal of that portion of the Bitter Root branch, which extends from Missoula, Mont., to Darby, from the west side to the east side of the Bitter Root river. Between Hamilton and Florence the greater portion of tillable land lies on the east side of the river and the construction of a beet sugar plant at Missoula was contingent upon the line change. Including right of way, the cost of the work is estimated at approximately $900,000. Completion of construction on these projects is scheduled for June, 1928.

PENNSYLVANIA.—The company contemplates the construction of a steel bridge on its line at Fernwood, Pa.

SOUTHERN.—This railroad has under consideration plans for the erection of a roundhouse with boiler house, water tank, and office building at Macon, Ga. The plans contemplate a 24-stall structure to cost around $300,000.

THE INTERSTATE COMMERCE COMMISSION has vacated its order of May 10 reopening for further hearing on petitions filed by the railways its proceedings in the Memphis-Southwestern investigation and the consolidated southwestern cases. It has also denied the petitions, which the railways indicated they desired to withdraw.

On the N. Y. C., Harlem Division

Financial

ATLANTIC COAST LINE COMPANY.—*Stock Authorized.*—The Interstate Commerce Commission has authorized this company to issue $2,940,000 capital stock of $50 par value to be sold at not less than par and the proceeds used to assist the company in the payment of the purchase price of $3,718,200 common stock of the Atlantic Coast Line Railroad Company issued at par to the Atlantic Coast Line Company as a stockholder.

BALTIMORE & OHIO.—*Bonds Called.*—The Baltimore & Ohio has called for payment on January 1, 1928, all of its ten-year 6 per cent secured bonds issued under and secured by the trust indenture dated July 1, 1919. The principal amount together with accrued interest to January 1, 1928, and a premium of 2½ per cent will become payable on January 1, 1928, after which date interest on the bonds will cease.

CHICAGO, MILWAUKEE & ST. PAUL.—*Reorganization Plan Taken to Supreme Court.*—The bondholders' defense committee, headed by Edwin C. Jameson, has petitioned the Supreme Court of the United States to grant a review of decisions of the lower courts which had approved the reorganization plan, asserting that the reorganization has not been worked out in accordance with the situation existing when the plan was first approved.

COWLITZ, CHEHALIS & CASCADE.—*Bonds Authorized.*—The Interstate Commerce Commission has authorized the issue of $60,000 general and refunding 6 per cent bonds to be sold at par and the proceeds used to complete the construction of an extension. It is expected that the bonds will be taken by the Chicago, Milwaukee & St. Paul, the Oregon-Washington Railroad & Navigation Company, the Northern Pacific and the Great Northern, which four carriers connect with the company's railroad lines.

GAINESVILLE MIDLAND.—*Reorganization.*—The Interstate Commerce Commission has approved the plan for the reorganization of the Gainesville Midland and its acquisition by the Seaboard Air Line by purchase of capital stock. The Gainesville Midland went into receivership on February 15, 1921, and was sold at foreclosure on March 2, 1926, to the chairman of the reorganization committee, which sale has since been confirmed by the court. The Gainesville Midland had lines having the general form of the letter "Y" with the trunk extending from Gainesville to Belmont, with one arm extending from Belmont to Monroe, 32 miles, and the other extending to Fowler Junction, 30 miles. From Fowler Junction the company operated by means of trackage rights over the Seaboard Air Line and the Athens Terminal Company into Athens, Ga. The commission approved the abandonment of that part of the line from Belmont to Monroe and the acquisition of the line from Gainesville to Fowler Junction by the new Gainesville Midland Railroad Company and it also approved the acquisition by the new company of the trackage rights into Athens. The new company is to issue $5,000 of capital stock which is to be acquired by the Seaboard Air Line and $360,000 first mortgage 20-year 6 per cent bonds, series A, which are to be turned over to the reorganization committee and in connection with which the Seaboard Air Line will assume obligation and liability as guarantor. It was shown in the record that most of the traffic handled over the mileage to be abandoned would find an outlet on a line of the Seaboard Air Line.

GRAND TRUNK JUNCTION.—*Retirement of Bonds.*—Sir Henry Thornton, president of the Canadian National, has announced that he has advertised in England an offer of settlement to holders of Grand Trunk Junction Railway Company mortgage bonds. These bonds amount to $938,360, bear interest at 5 per cent and mature January 1, 1934. The terms of the offer are that the bonds are to be redeemed next January 1 at 99 for 100 par value. Bondholders must signify assent to this proposal by December 1 next. While these bonds are outstanding, the C. N. R. must keep separate accounts to show the earnings of the few miles of railway involved.

GREAT NORTHERN.—*Bonds Sold.*—J. P. Morgan & Co., the First National Bank of New York and the National City Company have sold $20,000,000 general mortgage 4½ per cent bonds, series E, at 99 per cent and accrued interest to yield 4.55 per cent to maturity. The bonds are dated July 1, 1927, and mature July 1, 1977. They are redeemable in whole or in part at the option of the company as follows: On July 1, 1947, or on any interest date thereafter prior to July 1, 1957, at 105 per cent and accrued interest; on July 1, 1957, or on any interest date thereafter prior to maturity at 102½ per cent and accrued interest.

The total mileage covered (directly or collaterally) by the general mortgage is 7,504 miles, constituting approximately 97 per cent of the total mileage of the Great Northern system. No more underlying mortgage bonds may be issued. Stock representing approximately one-half of the ownership of the Chicago, Burlington & Quincy is pledged, free from prior lien, under the general mortgage. Excluding the bonds issued to finance the ownership of the Burlington stock, the mortgage debt of the company is outstanding at the rate of approximately $29,000 per mile of road, including the present issue.

Bonds Authorized.—The Interstate Commerce Commission has authorized the issuance of $20,000,000 general mortgage 4½ per cent bonds, series E. These are to be drawn down in lieu of a like amount of 4½ per cent bonds, series B, heretofore authorized. The commission authorized the sale of bonds at not less than 97 and accrued interest. The carrier had proposed to sell them at not less than 96 per cent.

GREAT NORTHERN PACIFIC. — *Merger Hearings.*—Hearings on the unification of the Great Northern and the Northern Pacific before Charles D. Mahaffie, director of the bureau of finance of the Interstate Commerce Commission, and Ezra Brainerd, commissioner, began at Minneapolis, Minn., on October 24. W. P. Kenney, vice-president and director of traffic of the Great Northern, the first witness, discussed the possible development of Minnesota, North Dakota, Montana, Idaho and Washington in the next few years through diversified farming, dairying and live stock, estimating that an additional population of 2,410,000 can be supported in those states, and stating that these new settlers will come in under improved transportation conditions. The Great Northern and the Northern Pacific, he said, not only failed to earn a fair return in 1926 on any of the $216,144,016 increase in property investment since the middle year of the test period ending June 30, 1916, but actually experienced a decrease in net railway operating income equivalent to a fair return on an additional $59,033,217 investment. This investment on which no return was earned, $275,177,233 amounts to 23.5 per cent of the total investment of the Great Northern and Northern Pacific.

C. O. Jenks, vice-president in charge of operations of the Great Northern, testified that under unification, costs can be reduced, as the roads could take advantage of shorter or better routes between common points; eliminate duplicate freight train service; make the fuel supply of each company available to all companies; reduce switching and terminal costs through common ownership of yards and equipment; re-arrange the work of shopping locomotives and cars with a view to concentrating the work and facilities in better equipped shops; make more intensive use of combined ownership of cars and locomotives and make a consequent reduction in the number of cars and locomotives which are required.

MISSOURI PACIFIC. — *Committee Appointed to Consider Dividend Policy.*—The executive committee has authorized the appointment of a special committee to consider in all its aspects the matter of accumulated dividends on the preferred stock and to report to the board of directors its recommendations as to the best method of dealing with the situation. The committee includes L. W. Baldwin, president of the Missouri Pacific; John J. Raskob, chairman of the finance committee of the General Motors Corporation; Charles H. Sabin, chairman of the Guaranty Trust Company; Charles E. Ingersoll, a director of the Pennsylvania, and W. H. Williams, chairman of the Missouri Pacific. The Missouri Pacific preferred stock is entitled to 5 per cent cumulative dividends none of which have been paid. By the close of 1927 the accumulations will total $47.50 per share.

Acquisition of Lines.—The Interstate Commerce Commission has issued a certificate authorizing this company to acquire and operate lines extending from Marion, through Energy, to Hafer, 8.14 miles, a branch line from Energy to the south corporate limits of Herrin, 1.47 miles, and a spur track in the town of Herrin, 0.35 miles, or a total of 9.96 miles, heretofore operated by the Coal Belt Electric Rail-

way, all of the stock of which is owned by the Missouri Pacific, but the lines of which, mentioned above, have been heretofore used by the latter under trackage rights.

MORRIS & ESSEX.—*Bonds Sold.*—J. P. Morgan & Co. have sold $9,871,000 first refunding mortgage 3½ per cent bonds at 85½ per cent and accrued interest to yield 4.15 per cent to maturity. The bonds are guaranteed by the Delaware, Lackawanna & Western, lessee.

The proceeds of the sale of these bonds, which have previously been held in the treasury of the Delaware, Lackawanna & Western, will be used to reimburse the latter company's treasury for expenditures for additions and betterments to the Lackawanna system heretofore made and to defray the cost of similar improvements in the future.

These $9,871,000 bonds are issued under the first refunding mortgage dated December 1, 1900, with the Farmers' Loan and Trust Company, New York, trustee, and upon their sale the entire $35,000,000 of bonds authorized to be issued under the mortgage will be outstanding in the hands of the public. The mortgage is a direct first lien on the entire property of the Morris & Essex, comprising chiefly the main line of the Lackawanna system from Hoboken, N. J., to Phillipsburg, N. J., the Boonton branch extending from a point on the main line near Hoboken through Paterson to Dover, N. J., and the lands, yards and buildings at Secaucus, Jersey City and Hoboken, N. J., which constitute the tidewater terminals of the Lackawanna system on New York Harbor. The mortgage covers 125 miles of railroad lines. There are 24 miles of single track, 101 miles of double track, 35 miles of third track and 21 miles of fourth track.

NEW YORK, CHICAGO & ST. LOUIS.—*Promissory Note.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell a six-months 6 per cent promissory note, to provide it with additional working capital, and to issue at maturity a similar note in payment or renewal. The company also asked authority to assume obligation and liability as endorser in respect of the Nickel Plate Development Company's promissory note for $2,501,096, which is to be pledged as collateral.

NEW YORK, NEW HAVEN & HARTFORD.—*Indebtedness to Government Reduced.*—This company has liquidated its indebtedness to the federal government arising from the federal control period, under section 207 of the transportation act, by paying a note of $43,000,000 to the Secretary of the Treasury, and interest, and has also reduced its indebtedness on account of loans made under section 210 by payment of $4,350,000. This reduces its indebtedness on the latter account to the amount, $22,580,000.

NORFOLK & WESTERN.—*Extra Dividend.*—The directors have declared an extra dividend of $2 a share and the regular quarterly dividend of the same amount payable December 19 to stock of record November 30. This makes a total of dividend disbursements on the common stock of $10 for 1927 or the same amount as last year.

PITTSBURGH & LAKE ERIE.—*Stock Dividend.*—Directors have declared a stock dividend of 20 per cent payable to stock of record December 1. If the Interstate Commerce Commission approves the issue, it is proposed to issue the certificates for the dividend stock on or about December 10. Details regarding the dividend are given by A. H. Harris, chairman of the finance committee, as follows:

"Authorizd capital stock of the company is $50,000,000, and the amount outstanding is $35,985,600.

"The stock to be issued as a dividend has a par value of $7,197,100, making the amount to be outstanding $43,182,700. As of July 31, 1927, the Pittsburgh & Lake Erie had a total corporate surplus of $51,512,088.

"During the period June 30, 1916, to December 31, 1926, the company's investment in road and equipment increased $28,808,284 and outstanding capital stock and funded debt increased $9,965,506.

"Directors have deemed it advisable that a portion of the company's unissued capital stock should be issued as a stock dividend for the purpose of capitalizing in part the expenditures for enlargement and improvement of the company's transportation facilities which have heretofore been made out of earnings that would otherwise have been available for dividends and which have not been capitalized."

The Pittsburgh & Lake Erie stock is of $50 par value. The New York Central owns slightly over 50 per cent of the total outstanding. The company pays 10 per cent regular dividends and in 1926 it paid also extras totaling 10 per cent.

TENNESSEE CENTRAL—*Bonds Authorized.*—The Interstate Commerce Commission has authorized the issuance of $410,000 first mortgage 6 per cent bonds, series B, to be sold at not less than 96½ per cent and accrued interest. The proceeds are to be used to reimburse the carrier in part for expenditures for additions and betterments.

Average Price of Stocks and of Bonds

	Oct. 25	Last week	Last year
Average price of 20 representative railway stocks..	118.70	120.30	99.48
Average price of 20 representative railway bonds..	96.22	96.00	91.21

Dividends Declared

Elmira & Williamsport.—Common, $1.15, payable November 1 to holders of record October 20.

International Railways of Central America.—Preferred, 1¾ per cent, quarterly, payable November 15 to holders of record October 31.

Illinois Central.—1¾ per cent, quarterly, payable December 1 to holders of record November 4.

Norfolk & Western.—$2.00, quarterly; $2.00 extra; both payable December 19 to holders of record November 30.

Two Boston "Centuries" at South Station

Officers

Executive

Nathan W. Hawkes, freight traffic manager of the Canadian National and the Central Vermont, with headquarters at Montreal, Que., has been appointed vice-president in charge of traffic of the Boston & Maine, with headquarters at Boston, Mass. Mr. Hawkes was born at Appleton, Me., on July 21, 1882, and was graduated from Cambridge High and Latin School in 1900. He entered railway service on October 1, 1900, with the Grand Trunk. He became general freight agent of the Central Vermont, with headquarters at St. Albans, Vt., on December 1, 1915. He remained there

N. W. Hawkes

for several years, and under federal control was a member of the New England District Freight Traffic Committee at Boston. He was the first chairman of the New England Freight & Passenger Association, which he organized in January, 1920. On January 1, 1924, Mr. Hawkes became New England traffic manager of the Central Vermont, the Canadian National and the Grand Trunk, with headquarters at Boston. In August, 1926, he was appointed system freight traffic manager of the Canadian National and the Central Vermont, continuing also as New England traffic manager. These positions he was holding at the time of his recent appointment as vice-president in charge of traffic of the Boston & Maine.

Operating

L. E. Hoffman, assistant superintendent of the St. Louis Southwestern, with headquarters at Pine Bluff, Ark., has been appointed train rule examiner, with the same headquarters. **T. M. Hutson,** assistant superintendent in charge of ballast work on the Northern division, with headquarters at Pine Bluff, will have jurisdiction over the territory from south yard limit Jonesboro to

south yard limit Pine Bluff, including Little Rock, England, Hazen and Waldstein sub-divisions, with the same headquarters. He will succeed Mr. Hoffman.

C. L. Walden, passenger trainmaster of the East Florida division of the Seaboard Air Line, with headquarters at West Palm Beach, Fla., has been transferred in the same capacity to the South Florida division, with headquarters at Arcadia, Fla., succeeding **W. A. Lane,** transferred.

N. McMillan, assistant superintendent of the Trenton division of the Canadian Pacific, with headquarters at Toronto, Ont., has been promoted to superintendent of that division, with headquarters at the same point, succeeding **H. J. Main,** who has been transferred to Moose Jaw, Sask. **F. Davis,** transportation assistant in the Algoma district, with headquarters at North Bay, Ont., has been promoted to assistant superintendent at Toronto, succeeding Mr. McMillan. **F. M. Rutter,** superintendent of the London division, with headquarters at London, Ont., has been transferred to Smith's Falls, Que., replacing **S. W. Crabbe,** who has been transferred to London.

Charles Murphy, who will retire on November 1 as general manager of the Western lines of the Canadian Pacific, with headquarters at Winnipeg, Man., was born on November 20, 1865, and was educated in the public schools at Prescott, Ont. He entered railway service in 1883 as an operator on the Canadian Pacific, being advanced to chief operator in 1885 and to chief dispatcher at Ottawa, Ont., in 1890. In 1899, Mr. Murphy was promoted to acting superintendent and in the following year he was promoted to superintendent, with headquarters at Chapleau, Ont. Later he served as superintendent at North Bay, Ont., and at Toronto, Ont. Mr. Murphy acted as relief general superintendent on the Lake Superior, Atlantic, Eastern and Ontario divisions during 1907 and 1908 and at the end of that time he was promoted to general superintendent of the Eastern division. From October, 1910, to July, 1915, he served as general superintendent of transportation of the Eastern lines, with headquarters at Montreal, Que., where he remained until his appointment as general superintendent of the Manitoba district, with headquarters at Winnipeg. On October 18, 1918, Mr. Murphy was promoted to general manager of the Western lines, with headquarters at Winnipeg, a position he held continuously until his retirement. Mr. Murphy's entire railroad service, 44 years, has been with the C. P. R.

Charles Murphy

Andrew Halkett, who will become general superintendent of the Algoma district of the Canadian Pacific, with headquarters at North Bay, Ont., on November 1, was born at Ottawa, Ont. He attended the Ottawa Collegiate Institute and entered railway service on November 21, 1897, as a brakeman on the C. P. R. at Vancouver, B. C. Later he served in the same capacity at Nelson, B. C., and on January 23, 1903, he was promoted to conductor, with headquarters at Nelson. On June 1, 1910, Mr. Halkett was advanced to trainmaster at Nelson where he remained until January 1, 1915, when he was promoted to superintendent of the Kenora division, with headquarters at Kenora, Ont. In the following year he was transferred to the Moose Jaw division, with headquarters at Moose Jaw, Sask., a position he has held continuously until his promotion to general superintendent of the Algoma district.

Andrew Halkett

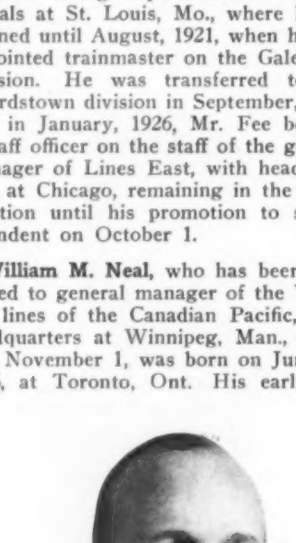
H. J. Humphrey, who will become assistant to the vice-president of the Canadian Pacific, with headquarters at Montreal, Que., on November 1, entered railway service as a telegraph operator on the Intercolonial Railway (now a part of the Canadian Government Railways which are operated as a unit of the Canadian National) in 1896. The following year he became a telegraph operator on the Boston & Maine, returning to the Intercolonial in the same capacity in 1901. In 1902 Mr. Humphrey entered the service of the Canadian Pacific as a telegraph operator, being advanced successively to train dispatcher, chief train dispatcher and car service and fuel agent of the Saskatchewan district. In 1915 he was promoted to superintendent of car service of the Western lines, with headquarters at Winnipeg, Man. In 1916 he was appointed car service and fuel agent of the Eastern Lines, with headquarters at Montreal, Que., and after a few months in this position he became superintendent, with headquarters at Farnham, Que., being transferred later to Montreal, Brownville Junction, Me., and Toronto. In August, 1922, he was promoted to assistant general superintendent of the Ontario district, with headquarters at Toronto, Ont. Mr. Humphrey was promoted to general superintendent of the Algoma district, with headquarters at North Bay, Ont, in March, 1924, a position he has held continuously until his appointment as assistant to the vice-president.

H. J. Humphrey

Samuel L. Fee, who has been promoted to division superintendent of the Chicago, Burlington & Quincy, with headquarters at Centerville, Iowa, was born at Knoxville, Iowa, on October 9, 1889. After attending high school at Knoxville he entered railway service in July, 1904, as an operator and relief agent on the Ottumwa and Sterling divisions, becoming a brakeman on the Lincoln division in August, 1906. During 1908, Mr. Fee served as a fireman on the Chicago & North Western at Norfolk, Neb., and Chadron, then returning to the Burlington to enter the auditing department. For the next nine years he acted in a variety of capacities including those of passenger agent at Chicago, assistant immigration agent at Omaha and Chicago, Burlington representative at the Panama Exposition at San Francisco, Cal., service inspector on the staff of the passenger traffic manager, supervisor of passenger service at the eastern entrance to Yellowstone Park and assistant trainmaster on the Aurora division. During the war he served for a time as general agent for the United States Railroad Administration in charge of troop movements at Camp Grant, Ill., and in December, 1918, he was appointed trainmaster on the Gales-

burg division. After a short period as a special inspector on the general manager's staff at Chicago, Mr. Fee was appointed acting superintendent of terminals at St. Louis, Mo., where he remained until August, 1921, when he was appointed trainmaster on the Galesburg division. He was transferred to the Beardstown division in September, 1923, and in January, 1926, Mr. Fee became a staff officer on the staff of the general manager of Lines East, with headquarters at Chicago, remaining in the latter position until his promotion to superintendent on October 1.

William M. Neal, who has been promoted to general manager of the Western lines of the Canadian Pacific, with headquarters at Winnipeg, Man., effective November 1, was born on June 20, 1886, at Toronto, Ont. His early life



W. M. Neal

was spent in Toronto where he entered railway service as a stenographer and clerk on the Canadian Pacific on January 22, 1902. On September 1, 1904, Mr. Neal was advanced to secretary to the superintendent of transportation of the Western lines at Winnipeg, Man., and for the next 12 years he served in that capacity, as secretary to the general superintendent at Winnipeg, as chief clerk to the superintendent of the Souris division in Manitoba, as assistant chief clerk to the general superintendent of the Manitoba district and as chief clerk in the car service department at Montreal and at Winnipeg. Mr. Neal was promoted to car service agent on the Quebec district in January, 1916, and until February 1, 1920, he then successively filled the positions of acting superintendent of car service of the Eastern lines at Montreal, assistant superintendent of terminals at Montreal, superintendent of car service of the Eastern lines and general secretary of the Canadian Railway War Board. In 1920 he was promoted to assistant general superintendent of the Quebec district, with headquarters at Montreal, where he remained until April 19, 1920, when he was transferred to the Ontario district, with headquarters at Toronto. Mr. Neal was promoted to general superintendent of the Algoma district in July, 1922, with headquarters at North Bay, Ont., and in March, 1924, he was again promoted to assistant to the vice-president, with headquarters at Montreal, holding the latter position until his promotion to general manager of the Western lines.

C. C. Blanc has been appointed superintendent of terminals of the Jacksonville Terminals of the Atlantic Coast Line, with headquarters at Jacksonville, Fla. **T. W. Hansell** has been appointed assistant superintendent of terminals, with the same headquarters. **F. B. Langley,** district superintendent at Gainesville, Fla., has become district superintendent at Ocala, Fla. **G. E. Rollins,** assistant district superintendent, with headquarters at Tampa, Fla., has been appointed superintendent of the Lakeland district, with headquarters at Dunnellon, Fla. **J. G. Patterson** has been appointed trainmaster at Dunnellon, and **B. W. Erwin,** trainmaster at St. Petersburg, Fla., both on the Lakeland district. **S. E. Jones** has been appointed trainmaster of the Jacksonville district at Sanford, Fla. **W. T. Pace** has been appointed trainmaster of the Ocala district at Perry. **F. E. Wright** has been appointed terminal trainmaster of the Tampa district at Tampa, and **W. S. Baker** has been appointed trainmaster of the Montgomery district at Montgomery, Ala., succeeding Mr. Jones. All appointments are effective November 1.

Traffic

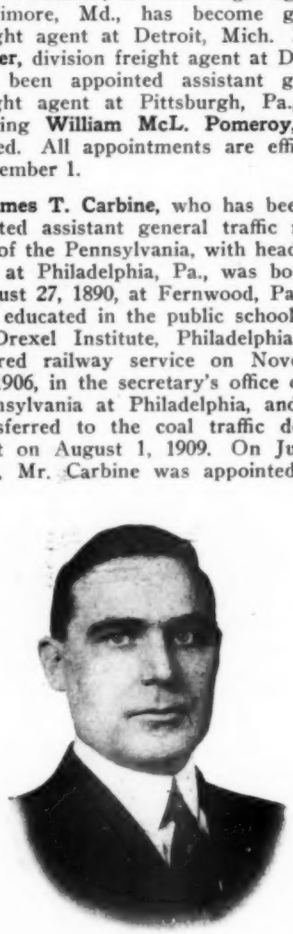
T. A. Harahan has been appointed assistant coal freight agent of the Lehigh Valley with headquarters at New York, effective November 1.

J. G. Carlisle, general freight agent of the Missouri Pacific, with headquarters at St. Louis, Mo., has been appointed director of industrial development, with headquarters as before at St. Louis, effective November 1.

D. E. Clark, live stock agent of the Union Pacific, with headquarters at Portland, Ore., has been promoted to general live stock agent, with headquarters at Cheyenne, Wyo., and the position of general agent in the freight department at that point has been abolished. **C. B. Irwin,** general agent in the freight department at Cheyenne, Wyo., has been appointed special representative of the department of traffic, with headquarters as before at Cheyenne. **S. C. Clarke** has been appointed general agent representing the operating and traffic departments at Gering, Neb.

A. E. Buchanan, assistant general passenger agent of the Pennsylvania with headquarters at Philadelphia, has been appointed general passenger agent of the Eastern region, with the same headquarters, succeeding **C. H. Mathews, Jr.,** promoted. **W. A. Phillips,** chief clerk to the general passenger agent at Philadelphia, has become assistant general passenger agent, succeeding Mr. Buchanan. **W. W. Richardson,** general passenger agent at St. Louis, Mo., has been appointed assistant to the passenger traffic manager of the Western region, with the same headquarters. **F. A. Bauchens,** assistant general passenger agent at St. Louis, has been appointed general passenger agent in that city, succeeding Mr. Richardson. **J. B. McCorkle,** division freight agent at Cleveland, O., has been appointed coal and ore agent at the same place, succeeding **William R. Cox,** promoted. **T. W. Preston,** division freight agent at Baltimore, Md., has become general freight agent at Detroit, Mich. **R. H. Miller,** division freight agent at Detroit, has been appointed assistant general freight agent at Pittsburgh, Pa., succeeding **William McL. Pomeroy,** promoted. All appointments are effiective November 1.

James T. Carbine, who has been appointed assistant general traffic manager of the Pennsylvania, with headquarters at Philadelphia, Pa., was born on August 27, 1890, at Fernwood, Pa., and was educated in the public schools and at Drexel Institute, Philadelphia. He entered railway service on November 12, 1906, in the secretary's office of the Pennsylvania at Philadelphia, and was transferred to the coal traffic department on August 1, 1909. On June 1, 1922, Mr. Carbine was appointed coal



J. T. Carbine

freight agent at Philadelphia, and in January, 1926, was appointed coal traffic manager, with headquarters at Pittsburgh, which position he was holding at the time of his recent appointment as assistant general traffic manager.

William R. Cox, who has been appointed coal traffic manager of the Central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., was born on March 5, 1886, at Shippensburg, Pa., and was educated in the public and high schools. He entered railway service on February 5, 1903, with the Pennsylvania at Pittsburgh, and from that time, until April 30, 1916, occupied various clerical positions in the North avenue freight station at Pittsburgh and in the general freight office at the same place. On May 1, 1916, Mr.

Cox was appointed chief clerk to the assistant freight traffic manager at Pittsburgh, and in February of the following year was appointed chief clerk to the freight traffic manager, with the same headquarters. On August 1, 1918, Mr. Cox was appointed chief clerk to the traffic manager, still remaining at Pittsburgh, and on March 1, 1920, was transferred in the same capacity to Chicago. On August 1, 1921, Mr. Cox was appointed division freight agent at Columbus, O., and on January 1, 1924, was transferred in a similar capacity to Youngstown, O. On July 1 of the same year he was appointed assistant general freight agent at Pittsburgh, Pa., and on August 1, 1925, was appointed coal and ore agent at Cleveland, O., which position he was holding at the time of his recent appointment as coal traffic manager. Mr. Cox's entire railroad service has been with the Pennsylvania railroad.

Albert H. Seaver, who has been appointed assistant passenger traffic manager of the New York, New Haven & Hartford, with headquarters at Boston, Mass., was born on June 19, 1876, at Boston, Mass. He entered railway service in July, 1895, with the New York, New Haven & Hartford, and from July, 1902, to February, 1904, served on this road as chief rate clerk at Boston. He then became chief clerk in the passenger department of the Marine district of the New Haven at New York, which position he held until May, 1910. Mr. Seaver was then appointed assistant general passenger agent of the New Haven at New York, and served in this capacity until August 31, 1918. From May 12, 1910, until March 14, 1913, he was also assistant general passenger

A. H. Seaver

agent of the New England Steamship Company (a subsidiary of the New York, New Haven & Hartford, and formerly the New England Navigation Company). At the latter time Mr. Seaver became general passenger agent of the New England Steamship Company, which position he was holding at time of his recent appointment as assistant passenger traffic manager of the New Haven.

Harry C. Oliver, who has been appointed freight traffic manager of the Central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., was born on September 10, 1886, at Shreve, O., and was educated in the public schools at Salem and Canton, O. He attended Carnegie Institute of Technology at Pittsburgh for three years, and entered the service of the Pennsylvania at Canton, O., on May 1, 1902, subsequently serving several months on the engineering corps at Pittsburgh. He

H. C. Oliver

was in the North avenue freight station at Allegheny for three years and in the general freight office at Pittsburgh for 11 years. Mr. Oliver was out of the service from May, 1906, until October, 1909, On September 10, 1917, he was furloughed for military service. He received a commission as captain of infantry and served 16 months in France with the American Expeditionary Forces. He was discharged on June 1, 1919, remaining in the Officers' Reserve Corps with the rank of major of infantry, and returned to railroad service as special agent in the office of the assistant freight traffic manager of the Western lines of the Pennsylvania, under the United States Railroad Administration. On March 1, 1920, upon the termination of federal control, Mr. Oliver was appointed division freight agent of the Pennsylvania at Richmond, Ind., and on August 1, 1921, was transferred in the same capacity to Toledo, O. He was appointed general freight agent at Pittsburgh on August 1, 1925, which position he was holding at the time of his recent appointment as freight traffic manager.

William McL. Pomeroy, who has been appointed general freight agent of the Central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., was born on March 8, 1887, at Chambersburg, Pa., and was graduated from Princeton University in 1908. He entered railway service with the Pennsylvania on March 1, 1909, and after holding clerical positions in the North Philadelphia freight station and in the general freight department, Broad Street station at Philadelphia, he was appointed freight solicitor at Buffalo on October 1, 1911, and on March 1, 1913, was transferred in the same capacity to New Haven, Conn. On July 1, 1914, Mr. Pomeroy was appointed chief clerk to the division freight agent at Erie, Pa., and became agent of the Empire Line at Philadelphia on July 1, 1915. He was appointed district freight agent of the Union Line (now a part of the Pennsylvania) at Harrisburg, Pa., on March 1, 1916, and on August 7, 1917, Mr. Pomeroy was furloughed for military duty and served in the Ordnance Department, U. S. A., as first lieutenant and captain until the end of the war, serving for five months overseas in France with the American Expeditionary Forces. He returned to the service of the Pennsylvania on March 1, 1920, as special agent, and on October 24, 1921, was appointed assistant industrial agent at Philadelphia, and chief clerk to the traffic manager at Pittsburgh on January 1, 1922. On July 15 of the same year he was appointed division freight agent at Buffalo, N. Y., and on August 1, 1925, was appointed assistant general freight agent at Pittsburgh, Pa., which position he was holding at the time of his recent appointment as general freight agent.

Charles H. Mathews, Jr., who has been appointed assistant general traffic manager of the Pennsylvania in charge of the passenger traffic of the entire system, with headquarters at Philadelphia, Pa., was born on May 31, 1882, at Philadelphia, Pa., and attended William Penn Charter and Blights schools in Philadelphia. He was graduated from Princeton University in 1905 and entered the service of the Pennsylvania as a clerk on November 8, 1905. From

C. H. Mathews, Jr.

1905 until 1910, Mr. Mathews advanced through various clerical positions in the general passenger department and on August 1, 1912, was appointed tariff inspector of the New Jersey division and later of the Eastern Pennsylvania division. From October 1, 1913, until September 30, 1917, he served as passenger solicitor and from the latter date until January 17, 1918, was district passenger solicitor. He was then appointed dis-

trict representative, which position he held until August 31 of the same year, when he was advanced to acting division passenger agent at Philadelphia. On March 1, 1920, Mr. Mathews was appointed assistant general passenger agent of the Central region at Pittsburgh, and the following month was again advanced to general passenger agent of the same region with the same headquarters, remaining there until June 15, 1926, when he was appointed to a similar position on the Eastern region at Philadelphia. This position he was holding at the time of his recent appointment as assistant general traffic manager.

The title of **J. B. Moore,** general baggage agent of the Gulf, Colorado & Santa Fe, with headquarters at Galveston, Tex., has been changed to general baggage, express and mail agent.

Mechanical

Charles M. House, general car foreman of the Chicago & Alton, with headquarters at Bloomington, Ill., has been promoted to superintendent of motive power and equipment, with headquarters at the same point. He succeeds **George W. Seidel** who retired on October 20 because of ill health.

C. E. Brogdon, master mechanic of the Atlantic Coast Line, with headquarters at Moncrief, Jacksonville, Fla., has been transferred in the same capacity to Southover, Savannah, Ga., succeeding **J. W. Reams,** who has been assigned to other duties. **George C. Jones,** general road foreman of engines, with headquarters at Jacksonville, Fla., has been appointed master mechanic at Moncrief, succeeding Mr. Brogdon. The title of general road foreman of engines has been abolished.

Engineering, Maintenance of Way and Signaling

J. N. Olson has been appointed assistant valuation engineer of the Gulf, Colorado & Santa Fe, with headquarters at Galveston, Tex.

D. C. Barrett, acting division engineer of the Minnesota division of the Chicago & North Western, with headquarters at Winona, Minn., has been appointed division engineer of the same division.

Purchases and Stores

J. C. Daniels has been appointed storekeeper of the Chesapeake & Ohio, with headquarters at Thurmond, W. Va., succeeding **J. F. Light,** who has left the service.

Special

Robert H. Newcomb, assistant to vice-president of the New York, New Haven & Hartford, with headquarters at Boston, Mass., has resigned, effective November 1. He will engage in the practice of law and will be associated with James M. Hooper, attorney, at Boston.

Obituary

Dr. Benjamin F. Lounsbury, chief surgeon for the Eastern lines of the Chicago, Milwaukee & St. Paul since 1924, died in an automobile accident at Chicago on October 21.

Charles H. Booth, assistant treasurer of the Delaware & Hudson, with headquarters at New York, died at Post Graduate Hospital, New York City, on October 20, following a brief illness. Mr. Booth was born on December 1, 1859, at Racine, Wis., and was educated in the public schools of New York City. He was connected with the Delaware & Hudson continuously for almost 55 years, serving as clerk in the treasury department from 1873 until 1880; secretary to President Dickson from 1880 until 1884, and secretary to President Olyphant from 1884 until 1885. Mr. Booth served as cashier from 1885 until 1909, and as assistant treasurer and cashier from 1909 until 1918. He was federal treasurer for the Delaware & Hudson lines under the United States Railroad Administration, from 1918 until 1920, and local treasurer at Albany, N. Y., from 1920 until 1921. He was then appointed assistant treasurer, which position he held until the time of his death.

C. H. Booth

George T. Jarvis, vice-president of the Rutland, with headquarters at Rutland, Vt., died in that city on October 19. Mr. Jarvis was born on August 26, 1859, at New York, and entered railway service in January, 1876, and until February 1, 1880, served as a machinist apprentice in the Renovo shops of the Pennsylvania. He served also as locomotive fireman from August, 1877, until February, 1878. In 1881 and 1882, Mr. Jarvis was a special student in civil engineering at Massachusetts Institute of Technology, and in July, 1882, became superintendent's clerk on the Middle division of the Philadelphia & Erie (part of the Pennsylvania). From February, 1883, until April 10, 1883, he was chief clerk in the transportation department of the Mexican Central, and on the latter date became trainmaster of the First division of the same road, which position he held until January 1, 1884. From January 1, to April 7, 1884, he was superintendent of the Second division, and then served in the same capacity on the First division until February, 1888. Mr. Jarvis was superintendent of the Duluth, South Shore & Atlantic from February, 1888, until May 1, 1889, and from February, 1890, until March 15, 1891, served as superintendent of the Ohio division of the Baltimore & Ohio at Newark, O. Mr. Jarvis became assistant general superintendent of the Lake Erie & Western (now a part of the New York, Chicago & St. Louis) in November, 1891, which position he held until May 1, 1896, when he became receiver for the Louisville, Evansville & St. Louis (now part of the Southern), continuing in this capacity until January, 1901. On May 1, 1897, he also became receiver for the New Albany Belt & Terminal (now part of the Kentucky & Indiana Terminal). From September, 1900, until January, 1901, Mr. Jarvis was general manager of the Wisconsin Central, and from January, 1902, until the period of federal control was general manager of the Rutland. From June 27, 1903, until the period of federal control, he was also vice-president of the same road. During federal control Mr. Jarvis was general manager for the Rutland, and on March 1, 1920, resumed his former positions of vice-president and general manager. Since the latter part of 1924, he has held the position of vice-president.

PROGRESS IS BEING made in the preparation for electrification of the British-owned railroad between Caracas, the capital of Venezuela, and La Guayra, its seaport, reports Commercial Attache Halbert E. Watkins, Caracas, Venezuela, to the Department of Commerce. Poles for the overhead trolley line are already in place.

This railroad, a single track line winds through the coastal mountain range for a distance of about 23 miles, although a straight distance between these two cities is but eight miles. At present three trains a day run in each direction.

When the electrification is complete, it is planned to maintain hourly service between the two cities and to cut the running time from the two hours now necessary to one hour. Instead of trains, one-car units will be used to which a trailer may be attached, if desired.

A reduction of the fare to approximately one-half of the present rate is expected to bring about a considerable increase in traffic over the road which now has to meet competition from automobiles which now carry passengers at the same rate as the railroad.